The Infantry Battalion in War

A study of the infantry battalion its company and attached units and the relation to it of supporting arms and supplying elements

By LIEUTENANT COLONEL WALTER R. WHEELER
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The leadership and the response in all grades was admirable throughout the Meuse-Argonne battle, and it does not detract from the merits of others to emphasize the part played by the battalion commanders. As at Soissons, it was here again demonstrated that the battle was preëminently in their hands.—HISTORY OF THE 1ST DIVISION.



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FOREWORD

THE tendency of the final phases of the World War, to make the infantry battalion the decisive fighting unit, has been emphasized in the post-war manuals of the great military powers. In practice, greater and greater responsibility is being thrown on the battalion commander by reinforcing his basic infantry unit with a higher proportion of machine guns, and by the addition of new supporting and accompanying weapons for use against machine guns, against tanks and mechanized forces and against aircraft. His battalion fights now on so broad a front and in such depth and contains so many units that it has great flexibility and power of maneuver; and he has also, in his basic organization and in units customarily attached, so many weapons of such diversified power that his battalion, as reinforced, is practically self-contained, and is certainly sufficient within itself to meet a wide range of contingencies. With it all, in the organization of mobile forces, the battalion and the battalion commander have become so important that upon their average efficiency will largely depend success or failure in war. Any army in the next great war which is filled with energetic and able commanders of infantry battalions, who are possessed of tactical knowledge, initiative, resource and driving power, will have an advantage over an opponent not so well equipped in this particular that can hardly be overcome by superior efficiency anywhere else.

Lieutenant Colonel Wheeler has undertaken a work of great importance in the preparation of a logical discussion of the battalion commander's duties and functions in the usual situations and problems of modern war, and he has made his conclusions interesting and convincing by reinforcing his deductions with numerous historical examples from the late war. There results a volume which may well serve as a text for battalion commanders, a volume unique in my experience, and which I believe will prove of extraordinary value in the military education of this most highly important class of leaders.

The high quality of this work is what could be expected from

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the past experience of its author, who went overseas as a captain of our 1st Division and participated as battalion commander and as regimental, brigade and division staff officer in the brilliant and unsurpassed achievements of that splendid unit. Since the World War, what he learned over there of the practice of war has been considered and digested during duty with the Infantry Board, at The Infantry School, and as a student and instructor of the Command and General Staff School at Fort Leavenworth. Finally, his point of view has been broadened and he has been made familiar with the tactical conclusions of the foremost military power of today, by two years at the French Ecole Supérieure de Guerre. This most unusual background of experience and study gives great weight and authority to the tactical methods and procedure favored in this text.

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PREFACE

ALL along the line of battle we find infantry battalions. With them are medical and engineer detachments; in front of them, tanks or other armored fighting vehicles; above them, aircraft, and in rear of them, artillery and other supporting arms. Higher commanders, assisted by their staffs, direct, coördinate and supervise the efforts of all arms and services; the constant effort of the services is to supply the arms; the principal effort of the supporting arms is to aid the infantry battalion—*the unit of close combat*.

The war functions of all arms and services are difficult in execution; they reach their highest degree of difficulty in the supplying of infantry, the supporting of infantry, the fighting of infantry. If the services and the supporting arms can solve the problems of providing the infantry battalion with what is required in supplies and supporting action, they can solve any lesser included problem. The infantry battalion is the keystone of the arch of the military structure; unless we know the requirements and the functions of the infantry battalion commander we cannot build this military structure and maintain it against the stress of battle.

The action of the infantry battalion is noted in our field manuals and training regulations, and is discussed in publications of the general and special service schools as well as in historical studies based upon past wars. But nowhere in our military literature is there a progressive study of the battalion commander and the problems that confront him successively as he moves toward battle, takes part in it and, finally, withdraws.

This book is an effort to study the problems of the battalion commander in campaign, shearing away consideration of the details with which he cannot concern himself if he is to lead his battalion. It is an effort to put the reader "into the skin" of the battalion commander and, at each of the incidents that mark the progress of the battalion, bring out the problem of the commander and the elements upon which he bases his decision. It is an effort to be subjective rather than objective; synthetic rather than analytic;

tactical rather than technical, and to bring out principles rather than the details of practice. Finally, it is an attempt to show the human as well as the material side of the battalion commander's task, for, once on the battlefield with such weapons as he has, success depends as much upon the men who handle these weapons as upon the decisions and actions of the battalion commander.

When practicable, examples have been drawn from American experience; necessity dictates going to French and German sources for recent examples of mobile situations. Errors in execution are brought out in these examples; our next war may not give us a year of grace in which to train personnel. Cases of extreme losses are noted; if we can avoid them and yet do as well as the units mentioned, we shall be that much more successful.

Throughout this study there will be no mention of size of company or attached unit, very little reference to frontage or distance of dispositions, for nearly all of these depend upon the personnel and the material present with the battalion at the moment considered. Tables of organization provide for certain desirable numbers of personnel and quantities of weapons, but we know that sudden declaration of a state of war may require that the Regular Army and the National Guard go into battle little over their peacetime strength, with many battalions commanded by captains. Furthermore, whatever be the personnel and weapons present with the battalion when we start battle, we know that casualties will quickly reduce the effectives. The commanding officer, 11/28th Infantry, referring to the evening of the first day's attack in the Aisne-Marne Offensive, writes: "The regiment had not reached its third objective, but it had gone beyond the second against terrible resistance. The 2d and 3d Battalions had gone into the attack that morning nearly full strength. Now, their companies looked like platoons. The 2d Battalion was reorganized into five small rifle platoons and one machine-gun platoon, all commanded by sergeants. All the officers, excepting the battalion commander, had been either wounded or killed."

But the *principles* governing the action of the infantry battalion in combat are the same for the war-strength battalion unimpaired by losses as they are for a smaller battalion, whether the battalion starts battle with reduced personnel or arrives at that condition as

the result of wear and tear of combat. There will always be assault elements, be they reduced to companies of a few squads each; there will always be supporting weapons aiding the assault elements, be these weapons reduced to the one surviving machine gun; there will always be a reserve, be it no more than the handful of men the battalion commander can gather together in the vicinity of his command post.

Under all conditions, the principles applied in battle by the infantry battalion commander are the same. It is these principles we must know. We must not limit our study to procedure based upon unstable factors of frontage, distances and numbers which past experience and present expectation show cannot be depended upon either at the beginning or during the course of battle.

New types of armament are largely in the experimental stage; supplies of these necessary to equip an army would be costly: training in new, complex weapons demands time; the next war may commence with much the same weapons and in much the same way as the latest one ended. Once combat starts, changes will occur with surprising rapidity.

It is to be added that everything in this book is addressed to the officers of the organic units of the infantry battalion as well as to the commander of that battalion. Battles are fought by battalions, not by rifle companies or machine-gun companies; the rifle and the machine-gun companies exist mainly in order to fight as component parts of the infantry battalion, and the officers of these companies can accomplish their own mission only if they already have knowledge of the problems of their battalion commander. Moreover, the lieutenant of today is the battalion commander of tomorrow. Finally, as battle consists of a combination of infantry battalion actions, commanders of infantry regiments, infantry brigades, supporting artillery battalions, divisions, and their respective staffs can function in battle only if they understand the problems of the infantry battalion commander.

This study is based upon the theory of infantry in battle as announced by the War Department in field manuals and training regulations, the terminology of which is used throughout.

W. R. W.

INTRODUCTION

I: EVOLUTION OF THE INFANTRY BATTALION

INFANTRY is the oldest and basic arm; it is the *close-combat arm*. Infantry of past years would repay much study, but only by limiting our investigation to infantry characteristics as regards movement, fire, surprise, shock and morale shall we be able to keep it within reasonable limits. Means of surprise have been increased by the use of camouflage, smoke, armored fighting vehicles, improved weapons and more effective auxiliary arms; shock action with the bayonet is still necessary by platoon and smaller units. Developments in movement and fire have been continuously affected by scientific advance; the mental attitude of troops, their morale, has varied with the state of general education.

The history of early Egypt tells us that its armies were composed of infantry, archers and chariots. Under both the Egyptian and Persian systems, the people were practically the slaves of the government, and in battle it was sometimes necessary to flog them forward. We cannot believe that these troops possessed what is termed good morale.

As we might expect, we find the Greeks improving on the unwieldy masses of Egypt and Persia. Their tactical formation, a closely packed mass named the phalanx, developed sturdiness through the locking of shields one against the other, and started our modern decentralization of command by placing certain responsibilities on the front man of each file. Missile weapons were existent in stones, javelins and arrows. Alexander's troops also used Greek fire, a device which was reintroduced during the World War. The elephants of Pyrrhus at Heraclea were a link between the older war chariot and the modern armored fighting vehicle. Alexander won his wars through development of the idea that an individual, an army or a nation must win if it is going to live; in those days, defeat in the field meant death or slavery. He was one of the first to appreciate the value of good morale.

The Carthaginians gave us an example of heterogeneous troops

who were able to accomplish remarkable results because of good training and good morale developed by able leaders such as Hannibal.

The armies of the Roman Republic set an example to the following centuries. As long as the Roman citizen served in the legion it was unbreakable. Starting with the bulky phalanx, rigid discipline and high training permitted the breaking up of the phalanx into smaller, handier groups called maniples comprising one hundred twenty men—the infantry company of today. In all the infantry groups the files were arranged so that on the death or exhaustion of the man nearest the enemy, the second man of the file relieved him.

The fighting method of the Roman infantry was to approach the enemy, fling toward them a shower of javelins and then rush in with the short sword. This was the method of 225 B.C.; much the same method persists through the volley and bayonet charge of the eighteenth century down to the present day.

The Roman generals recognized that all men could not fight equally well. In the early stages of action they put in the younger, inexperienced groups, leaving the less impressionable veterans to watch the conflict, knowing that these latter would maintain their morale until they were sent in to finish the fight.

But Rome was not satisfied with causing its enemies to fear its infantrymen; it demanded that its soldiers fear their own leaders. The theory was that a man should be so afraid of his leaders that the leader could cause him to do anything. This method worked well in the chest-to-back, elbow-to-elbow formation of those days but it has progressively lost effectiveness as combat conditions have removed leaders from close touch with their men and as general education has been extended.

The decadence of Rome, the incorporation with the race of alien elements, changed Rome from a citizenry in arms to a nation employing a mercenary army. The strength of the legion was sapped and in due course the empire fell. It is this, and other similar examples, that have caused a French military authority to state that the infantry of a people is the race itself and that the race must never fail to be able to carry on with the infantryman's job. When a race fails in this, that race is on its way to extinction.

While catapults and similar devices had been used in the warfare of ancient times, the year 1346 saw the first use of a weapon which was to change methods of infantry combat. At Crécy the English, for the first time, used guns in the field. This was a great material advance. But Crécy is notable for more than that, for the rise from the ruck of the sturdy, self-respecting English longbowmen enabled them to be counted on for a well-executed preparatory storm of arrows, after which the English heavy cavalry delivered the shock. Infantry had become an arm capable of offense and defense, its special action could be utilized by a commander in combination with the special action of the cavalry. Ability brings self-respect and self-respect engenders good morale. There was a spirit of mutual esteem between knight and yeoman. We shall do well to note this beginning of field artillery, for as we follow its development we shall see that, progressively, it becomes welded more and more closely to the infantry with which it acts in combat.

Infantry has not always exercised dominant influence on the battlefield; during the early centuries of the middle ages the horseman was the arbiter of action. Combat consisted in shock action; the infantry being merely groups of bowmen and pikemen from among which the armored horsemen rode forth to fight as individuals.

It is clear that the shock power of an armored horse and rider was greater than the shock resistance of a footman, so that anything that would enable the footman to disable his adversary at a distance would be to the advantage of the footman. The progressive disappearance of the mounted man from the actual scene of combat commenced with the introduction of effective missile weapons. The weapons that a mounted man can use from the back of a horse have remained much the same from early times, whereas the footman now, in a few seconds, can spray hundreds of bullets from an automatic weapon.

The early mediaeval archer was able to find the joints of the horseman's armor, and infantry recommenced its career as a distinct arm. At Courtrai (1302), infantry placed so as to take advantage of ponds, marshes and dikes decided the day, and the training of the English archers so increased effectiveness of fire

that the French mounted men rode to a crushing defeat at Agincourt (1415). The burgher foot militia of the German cities represented another type. They were able to withstand the mounted nobles but the serf citizens of Central Europe did not produce the yeoman-archer of the English. Their training was good enough for defense but was not sufficient to make an attack. They mounted one- and two-pounders on small wagons which were able to maneuver with their footmen.

The last half of the fifteenth century brought improvements in both infantry and artillery. Foot troops were equipped with an increasing number of hand firearms and the artillery became more mobile. When France organized a permanent army in 1448 the desirability of fire in the attack was recognized. After the development of the Spanish arquebus about 1520 infantry fire began to be effective and thirty years later infantry began to come into its own. It could fight effectively and decisively at close quarters and at a distance—the principal characteristics of the arm today. In France and Spain it had developed a permanent regimental existence. The regiments consisted of ten to sixteen companies, each composed of one hundred fifty pikemen and fifty arquebusiers. Use of the musket was being gradually extended and calibers were standardized. During this same period artillery was used in battle but, due to its lack of mobility, had to remain fixed in positions. The varying fortunes of battle saw the guns in the possession of first one side, then the other.

The year 1600 saw the professional Spanish infantry at the height of its fame. Efficiency in delivering musketry fire demanded highly trained professional soldiers, for the weapons were complicated. Gonsalvo de Cordoba was able to develop such infantrymen; the admixture of pikemen with his musketeers gave power of resistance, while fire power enabled his infantry to attack. Infantry, finally, had become self-sustaining.

In 1620, the French infantry was able to maneuver handily on the field of battle in close-order formation, but the great Swedish leader, Gustavus Adolphus, was able to improve on the French foot. He lightened the musket so that it could be fired without a rest, and other improvements in the weapon so increased rapidity of loading that the infantry was formed six files deep instead of

ten files deep as had formerly been necessary. We may note here that every improvement in the hand fire weapon has progressively reduced the density of occupation of the battlefield.

Gustavus Adolphus was the first leader to recognize the function of artillery on the battlefield. He made a distinction between mobile and non-mobile artillery, and it was his forty-two light field guns, distributed among his infantry battalions, that beat Tilly's cumbersome 24-pounders at Breitenfeld (1631). Though artillery had been in existence for three hundred years, the personnel was still civilian and fusiliers were organized who had the double duties of protecting the gunners and preventing them from running away. Professional status of the artillery arm was low and in France officers of artillery received military rank only in 1732.

Gustavus Adolphus demanded more of his better trained and better supported infantry. Instead of having the first infantryman in the file fire his piece and then fall back, he required offensive action. This was secured by the firing of two volleys by two or three ranks after which the pikemen "fell on." The opinions for which men fought demanded action; formal pitched battles began to give way to meeting engagements in which the troops that could most quickly develop fire power were at an advantage.

Under Henry IV (1553-1610) the proportion of pikes to muskets had been two to one, then three to two. During the time of Gustavus this proportion became two to three, and in 1680 there was only one pike to three muskets. We see much the same thing today in the constantly increasing ratio of self-loading to hand-operated rifles. The invention of the socket bayonet about the year 1700 gave the infantryman a bayonet that did not interfere with loading and firing; each musketeer became a pikeman as well, and the pike disappeared.

The Swedish army of Gustavus Adolphus was one of the greatest in history. Composed of men who held convictions on religious and national questions of the day, they all had a stake in the game; their performance of duty was characterized by training of the individual to a higher degree than was possible in mercenary armies of other powers. The ideals for which they fought developed the high morale which was characteristic of the old Swedish and Scottish brigades as long as they existed, but, as under Napoleon,

when the infantry personnel changed, the infantry arm changed with it. The Swedish infantry of the latter part of the Thirty Years' War (1618-1648) was no better than the infantry of the other nations, just as the infantry of Napoleon's Russian campaign was no longer the infantry of Austerlitz, Jena and Auerstadt. Except in warfare with backward nations, the weapons of the infantry are much the same on the opposing sides, but the men using them change. European infantry of 1918—both Allied and Central Powers—was not the infantry of 1914; the casualties had been too heavy.

Powerful incentives of individuals to go to war disappeared for a while at the close of the Wars of Religion but by that time the structure of an army was based on the individual. In order to instil a sense of duty, Louvois, war minister of Louis XIV, took raw recruits and by uniforming them, quartering them in barracks and training them in regiments, developed regimental spirit.

The English Civil War (1642-1645) was fought out by men of strong convictions on both sides, consequently prompt decisions were sought. This entailed rapid movement of the opposing forces and the clumsy field pieces were left behind. Cavalry was the arm prepared for that: the Royalists drew their cavalrymen from "gentlemen that had honor and courage and resolution," while the Roundheads raised famous regiments of "men who made some conscience of what they did." Infantry was poorly equipped and poorly trained; artillery was immobile; cavalry was paramount. It was to be yet a century before Marshal Contades, beaten into retreat at Minden by six English infantry battalions, would complain: "I never thought to see a single line of infantry break through three lines of cavalry and tumble them into ruin."

Until Frederick II of Prussia interested himself in warfare, infantry fire was relatively ineffective. Prior to his time, infantry marched up to its effective range of one hundred yards and opened fire; two times out of five the flint would misfire. The side producing the greatest volume of accurate fire was victorious. Frederick, a born drillmaster plus an imagination, drilled his musketeers until they could fire five shots to their opponents two. Fire was by company volley, each company advancing a few paces at the command *Ready,* thereby attaining a combination of fire and

movement. Frederick's drilling did not stop at the manual of arms and the firings; he also exercised his troops in well-controlled movement on the battlefield. This training of his troops gave him victory at Leuthen (1757) over double his strength of position-bound Austrians.

For some years prior to Frederick's great battles there had been two classes of infantry: there were irregular light troops that performed outpost and scouting duties, and line troops. In an engagement the light troops cleared up the situation for the line infantry and then, leaving the line to carry on the battle, departed in search of loot. Frederick's line troops, however, were able to maneuver and this necessitated a longer period of employment of scouting troops. These troops were developed, were classified as light infantry and became a component of the army, though they were still considered to be incapable of delivering a blow equal to that of their comrades of the line. Frederick made efforts to protect deployment of his troops and also to shake the enemy by use of his heavier guns, sending horse artillery along with his infantry battalions to add to their fire power. But infantry fire power was the deciding factor, though the moral effect of artillery fire—which he for a long time failed to appreciate justly—was assessed weight in his tactical plans. Today artillery fire still retains its moral effect, while its material effects have increased a hundredfold.

In the Revolution, our troops, unable to drill at first, met their enemies in loose formation and started the downfall of close-order fighting. Artillery action was infrequent; the Continental line and occasional State troops infantry bore the brunt of battle. To meet the skirmishing tactics of our troops, the British organized entire regiments of light infantry, i.e., "infantry that could reconnoiter, do outpost work and skirmish, as well as fight in close order." The exploits of Sir John Moore's Light Division in the Peninsular War were the work of all around infantry of this type. The French also learned lessons in skirmishing from us.

From 1792 to 1815, the European cockpit saw many changes in infantry and in the artillery which was then beginning to be bound so closely to it. The infantry musket had an effective range of only two hundred yards and an enemy was safe from it at four hundred yards. The good infantry of the Directory, the Consulate

and the early Empire left its bones far afield, and by 1807 artillery was the predominant arm. It was not from choice that Napoleon's later actions were artillery battles. The sudden, crushing effects of fire that his inferior infantry could no longer produce were demanded of an artillery which, being short in range, had to have a high degree of mobility. The Emperor's artillery did not prepare the infantry attack; it smashed holes in the enemy lines into which his infantry, arranged in heavy masses because of lower individual quality, then advanced. Twenty per cent of assault regiments, nevertheless, were out in front as skirmishers. In the Napoleonic wars the difference between light and line infantry disappeared, artillery developed into the field artillery we know today and tactics became the art of combining the action of different arms. We think of the invisibility of men on a battlefield as a modern development, but it had already been observed in Wellington's day; we Americans, who had used ten per cent of assault regiments as skirmishers, had taught the British the value of cover.

In about 1825 the percussion-lock was adopted. It was more certain in action than the flint-lock, but the rate of fire, five rounds a minute in Frederick II's day, fell to two or three rounds a minute. The power of fire dropped; it was lengthened in range and accuracy by the rifled barrel and only later increased in volume by the modern magazine action. The breech-loading rifle allowed a soldier to load while prone. The self-loading rifle is the coming infantry small arm.

Between Waterloo and 1865 the rifled musket forced enemy guns back from the front lines (the Civil War Minié ball was effective up to five hundred yards); batteries of attacking forces no longer could dash up and smash an enemy line, and infantry assaults combining movement with pauses for fire were made against unbroken defending infantry aided by guns firing case shot. Colonel A. L. Wagner writes: "The Civil War gives examples of use of field artillery in the defensive, but few illustrations of the preparation of infantry attacks. (Individual batteries frequently did all that they could to this end.) At Fredericksburg, the crossing of the river was accomplished under cover of artillery fire, but the actual attack was not prepared by fire to silence the Confederate artillery and shake its infantry. At Gettysburg, Lee spread his artillery fire

along the Federal position, but did not concentrate it on a decisive point." The range of the rifled musket had improved faster than the method of handling field artillery. By this time, assault regiments had opened up their attack formations to the extent that sometimes as much as half of their men were deployed as skirmishers in advance of the main body.

The Franco-Prussian War showed the great moral and material advantage of a nation in arms over a professional army. The German artillery and spirit overwhelmed a French army that pinned such faith as it had to material. Yet the French taught their opponents a lesson when at St. Privat they crushed the Prussian Guard, which had not awaited the completion of an artillery preparation. But in the Champagne in 1915, the French had forgotten this lesson. The power of automatic weapons in the defensive does not lessen as the years go by; the human tendency is to forget this fact within a few years after the close of a war.

The Boer War (1899-1902) retaught the lessons of our American Revolution; the light-travelling hunter-soldier could successfully oppose regular troops. Improvements in field artillery and its handling had not rendered its action effective enough for its infantry to close with the enemy without incurring heavy losses. Developments in the handling of field artillery were still behind those of the rifle.

The prototype of the modern machine gun appeared experimentally during the Civil War. In 1870-71, at Gravelotte and again at le Mans, the French successfully used concealed machine guns to check attacking German infantry by surprise fire; the Russians used them similarly against the Turcoman cavalry in the Khiva campaign. At Santiago, in 1898, a group of four Gatling guns was used effectively against the Spanish before the assault was made by our infantry. Use of the machine gun by attacking troops began in the Russo-Japanese War; developments in its use from 1914 to 1918 by both attacking and defending troops are too well known to require further remark.

The World War clearly demonstrated that once battle was joined, infantry frequently made progress with least loss when there was a sufficient volume of artillery fire placed where and when the infantry called for it. The continued success of infantry on the

battlefield is bound more closely than ever to the effective aid of the artillery. The last two years of the war saw the birth and growth of the tank which, adding to the effect of artillery or, at times, completely supplanting the artillery, has proven itself an invaluable aid in facilitating progress of the infantry.

Infantry battalions started the World War with four rifle companies and a few attached machine guns. Our American infantry battalion finished it with four rifle companies of two hundred fifty men each, their armament having been augmented by automatic rifles, rifle grenades and hand grenades, the battalion usually having an attached machine-gun company. After the war the fourth rifle company became a machine-gun company. The 37-mm. gun and the 3-inch trench mortar, sometimes an accompanying gun, were frequently attached to the battalion. Oddly enough, this increasing use of machines in warfare has had the result of more firmly convincing us that warfare is waged by men. As the power of individuals to kill increases, we find fewer individuals on the battlefield, but such as are there are charged with heavy responsibilities. We also find it more difficult to exercise control over these individuals, which demands that we maintain in them a high degree of morale.

What about infantry of the future? Artillery will send more powerful shells farther; more automatic weapons will spray bullets faster and farther; air missiles, bombs, gas, poison, bullets, will come from above with little or no warning; smoke will obscure; gas will blind; the speed and armor of fighting vehicles will bring to the battlefield the naval problems of swift maneuver and projectile versus armor—the men who will handle all these weapons will remain much the same, barring the rise in general education which brings with it development of the critical sense. The standards of knowledge and leadership required in those who command will not diminish!

"If the infantry of our army is of high quality, that army will go far; if its infantry is poor, the army is poor, no matter how excellent all the remaining services may be."

NOTES:

1. Tables of organization (war strength) provide that the infantry battalion is commanded by a lieutenant colonel, with a

major as second in command, and a staff of five lieutenants. In this it is recognized that the command of an infantry battalion is a man's size job.

2. The commanding of an infantry battalion would be particularly difficult if the battalion had to be mobilized, equipped, trained and *imbued with good morale* within a period of a few weeks only.

II: THE BASIS OF GOOD INFANTRY TACTICS

THE dictionary defines tactics as "the art of handling troops in the presence of the enemy, or applying on the battlefield the movements learned at drill." As it is the experience of most soldiers that due to changes since the last war some of the knowledge acquired at drill has to be reconsidered in the presence of the enemy, we may wisely limit the definition to "the art of handling troops in the presence of the enemy." This definition, however, is too vague to convey any definite meaning.

Building is defined as the art of constructing. Now, all of us can look at a completed building and find it good or bad for its particular use according to our varying qualifications for judging; even during the process of construction we can say that this or that feature is good or bad. But when we examine bit by bit a theoretical battle situation, or study an account of a bygone battle, we are not so readily able to state whether it is good or bad at the particular stage considered.

We look at a *finished* building or a piece of sculpture and say that it is good because its arrangement, size and form please us. We look at a *finished* battle and say that it was good because it was a fruitful victory or bad because it was a defeat or a costly success void of result. In watching a builder or a sculptor at work we would be at a loss to form an opinion as to how the building or statue is to turn out. This is a matter that causes us no concern, for few men have a personal interest in the slowly developing product of a building or sculptor. But as troop leaders, when we follow the infantry battalion through the various phases of battle we have to be interested in the successive steps, we have to know the probable result of any given action, we have to know how the battalion stands from minute to minute, for, in battle, the result of the battalion's action, good or bad, lies in the leader's responsible hands. We must know the processes, what their probable results will be and we must know this from minute to minute.

In considering the processes, their probable results, and the condition at any given moment of the infantry battalion as a whole,

is there any measuring rule, any test, by which we can determine whether or not things are going as well as we can make them go? It is believed that there is such a measuring rule and that this measuring rule is the thought embodied in the phrase: "freedom of action to apply power."

What does "freedom of action to apply power" mean? Freedom of action means that, given our troops as they stand, we have at our disposal enough space and enough time to do what we wish to do.

Let us consider freedom of action in connection with that sort of conflict between men with which we are most familiar—fist fights. Two fighters are placed in the respective corners of a ring and the gong sounds. Their eyes provide information, their lefts provide security, their rights provide the greater part of their power. At this moment each fighter has an equal amount of freedom of action to apply power both in time and in space, for each man has three minutes in which to do what he wants to do, and the ring in which to do it. Most wars end in victory of one side and so with the finish fight of the prize ring.

Let us see what freedom of action to apply power has to do with the fist fight. Suppose boxer A, in the first round, rushes from his corner a bit faster than boxer B, and forces boxer B to come to blows near his own corner. A has manifested greater mobility than B and as a result he has more freedom of action to apply power than B, both in space and in time, for A has more of the ring in which to maneuver, while B has less of the ring in which to make use of his footwork. The same condition is true as regards time, for A, having more space in which to utilize his footwork, has at his disposal the time that corresponds to the extra space. Boxer B is correspondingly reduced as regards time.

Carry this fight along farther and let us say that A forces B into his corner against the ropes where he proceeds to pound him. B has lost nearly all his freedom of action to apply power as regards space; he is not able to make use of his footwork in maneuvering. As he cannot get away from the repeated blows of A, B has also lost freedom of action as regards time—he can only cover up and hope for the end of the round. B certainly has no space or time in which to do *what he wants to do*, that is, attack

A. The next round is called and A repeats his action, forces B into B's corner and pounds away until B is down and counted out. A has secured complete freedom of action, B has completely lost freedom of action, and A is the victor. Taking this fight of A and B at any given moment of the two rounds, we see that A could feel that he was doing well as long as he maintained his freedom of action to apply power, while B would, at the same moment, know that he was not doing well because he was losing his. Consequently, we may conclude that:

$$\left.\begin{matrix}\textit{Good boxing tactics of man}\\ \textit{against man}\end{matrix}\right\} = \left\{\begin{matrix}\textit{Maintaining freedom of ac-}\\ \textit{tion to apply power}\end{matrix}\right.$$

These two opposing fighters are like two opposing groups of troops, though it is a rare case when two opposing groups of troops are as independent as are these two men in the ring. In battle, there is always a higher commander who intentionally and necessarily restricts our freedom of action for reasons of his own. Had one of our two boxers received orders from his second, he would have less freedom of action than if he had received none; he (if not well disciplined) might be annoyed at having to follow orders, but it would probably be better for him to carry them out. At all events, a boxer acting under orders from his second would more nearly approximate the average group of troops. Consequently, if the boxer is acting under orders from his second, we may conclude that:

$$\left.\begin{matrix}\textit{Good boxing tactics of man}\\ \textit{against man}\end{matrix}\right\} = \left\{\begin{matrix}\textit{Maintaining (to the extent}\\ \textit{allowed by orders) freedom}\\ \textit{of action to apply power}\end{matrix}\right.$$

We can extend our study of ring fighting and consider two sides, one consisting of three Blue fighters, the other of three Red fighters. Let us suppose that a continuous combat is to be maintained with pauses only when one of the men in the ring is to be relieved by another. We start the fight with two boxers in the ring, one Red, one Blue. The Blue fighter, we will say, is our man. Our Blue man pitches into the Red fighter and wears him out considerably, but he is tired himself. We decide to replace him and send in our second Blue man who promptly knocks out the Red fighter at the first blow. We have disposed of one-third of the Red fighters, have

one tired man and two fresh men to use against the two remaining Red fighters. We succeeded in attaining this desirable result by limiting the freedom of action of our first Blue fighter—we limited his action in time. And through limiting his action in time we are in a better position to defeat the two remaining Red fighters. This case of the three Blue fighters versus the three Red fighters shows the result attained by limiting their action by means of orders given to them individually. Consequently, we conclude that:

$$\left.\begin{array}{l}\textit{Good boxing tactics of group}\\ \textit{against group}\end{array}\right\} = \left\{\begin{array}{l}\textit{Maintaining (to the extent}\\ \textit{allowed by orders) freedom}\\ \textit{of action to apply power}\end{array}\right.$$

These two groups of three Blue fighters and three Red fighters resemble a Blue regiment and a Red regiment, each consisting of three battalions, each battalion having its freedom of action to apply power restricted as regards time. If our fighters were armed and on varied terrain instead of in a ring the resemblance would be more marked.

Let us leave our ring fighters and turn to infantry groups. Suppose that two opposing battalions are placed on an island, each battalion having orders to defeat the other battalion, and that the two battalion commanders are left without further orders or reinforcements. These two battalion commanders, as far as higher commanders are concerned, would have absolute freedom of action to apply power. The only obstacles to the freedom of action of either battalion commander would be what his enemy might be able to do. It is presumable that after a time one of these battalion commanders would have killed or captured all of the other battalion, and, the island being his, he would have secured complete freedom of action for his own force. In studying his operations, we could conclude rightfully that he had, generally, used good tactics.

Such an imaginary type of battalion combat would appeal to all battalion commanders, but it is a type that practically never appears in reality. Combat in general is more complex: battalions fight side by side; supporting arms are acting with them and over the battalion commanders are the commanders of regiments, brigades and divisions, each of whom has a part in restricting the battalion commander as regards his freedom of action to apply

power. One battalion cannot win a war, so it is right and proper that its commander should have his freedom of action restricted within such limits as will best insure success of the whole. *So, in combat in general, we as battalion commander, may conclude that the first limitations on our freedom of action to apply power are placed on us by higher commanders and, usually, are transmitted to us by our regimental commander.* We must not forget that a battalion commander, experienced in combat, is a leader whose opinions are valued; he can be consulted prior to the issuing of orders concerning his battalion. In combat, it is difficult to find a better source of information concerning our immediate front than ourself—the battalion commander.

Freedom of action to apply power may be affected by material things: numbers, arms, ammunition, equipment, rations. This is the duty of pre-combat administration, but we cannot refrain from pointing out that shortage of weapons or lack of facilities for bringing up ammunition, water and food would be distressing; certain infantry units of one American division entered the Meuse-Argonne short of rifles. But, once on the battlefield, we have to work with what we have. If we have everything that we need and get necessary supplies of ammunition, water and food, our freedom of action to apply power is increased.

Consider uniform and formations: contrast an extended formation of prone individuals clad in neutral-colored uniforms with the erect, mass formations of brilliantly uniformed troops of a century ago. Modern practice in these things increases our freedom of action to apply power.

So far we have considered freedom of action to apply power as affected by man-made things. Let us see what effects terrain and atmospheric conditions—both beyond the control of man—have on our freedom of action. Imagine our battalion, with no supporting fires, attacking over a level, coverless plain, toward an enemy on higher ground covered with vegetation. We would be under accurate observation by that enemy, his fire could prevent us from moving and we would lose some, if not all, of our freedom of action; we would be "pinned to the ground." In this case we would certainly be in a bad tactical situation and somebody would be subject to the criticism of not having used good infantry tactics.

Reverse the situation of the preceding paragraph and imagine an enemy foolish enough to entrench on the level, coverless plain a few hundred yards from the edge of the high ground covered with vegetation. If our battalion attacked from the higher, wooded ground, our freedom of action to apply power would be favored by the terrain, while the enemy, whose every activity would be observed from our higher position, would be at the mercy of our fire.

The two preceding paragraphs show how necessary is mobility of the infantry battalion; *if we are more mobile than the enemy we can perhaps select the terrain on which we can fight the best.*

Atmospheric conditions affect our freedom of action to apply power. Imagine our battalion again on the level, coverless plain, but with a heavy fog or smoke hanging over both the plain and the heights. Under this condition of fog our battalion could attack toward the wooded heights; our freedom of action would be quite great, for the enemy could not see us to fire on us and we would be able to come to grenades and bayonets with him. Fog, or smoke, conceals our movements, but makes their direction very uncertain. Even during daylight woods are difficult to traverse in a definite direction on account of the relative obscurity they present. A moonless night gives us complete freedom of action as far as concealment is concerned, but movement is very difficult, slow and uncertain. The time of day helps or hampers us. On the western front of the World War, the Germans could attack at dawn, with sun in their enemies' eyes. *Terrain, atmospheric conditions and time of day have marked effect on the battalion commander's freedom of action to apply power. As a rule, we must accept these as we find them; we can do nothing to alter conditions of nature.*

There is another consideration that affects a battalion commander's freedom of action to apply power and that is the quantity and quality of the aid given by the supporting arms. Well-planned and well-executed aid helps us in maintaining our freedom of action, but poorly placed artillery fires sometimes decrease our freedom of action, particularly when these fires fall (rarely, through error) on our battalion. *As the actions of the supporting arms are beyond our absolute control, they have to be carefully considered in connection with our efforts to maintain freedom of action to apply power.*

So far, we have glanced over freedom of action to apply power as increased or decreased by the orders of our higher commanders, our numbers and equipment, the characteristics of the terrain, atmospheric conditions and the action of the supporting arms. We secure all help possible from these in maintaining our freedom of action, but there is another element we meet in combat—an element whose every activity is directed to opposing our freedom of action—and that is the enemy.

To detail all the efforts that an infantry group can put forth to crush freedom of action in an opposing infantry group would require a history of infantry group combat from the beginning of time. The evolution of the infantry battalion has been discussed at some length and in that discussion we noted that with good morale, the success of infantry group combat has depended on fire and movement. This is in accordance with natural law, for force or power is measured by mass multiplied by velocity. We have also noted that with the increase in the efficacy of defending automatic weapons, swift advance against them has become less practicable for the foot soldier.

We may expect that the enemy will do everything he can to hamper our freedom of action to apply power. In accomplishing this he may allow us certain freedom of action, as, for example, permitting us to move into a dangerous area, so that he may better destroy us.

So much for the effects on our freedom of action to apply power produced by agencies *outside* the battalion. There is another consideration, arising *within* the battalion, which has a preponderant effect on our freedom of action, one flowing out of the mental state of the men of the battalion—morale. In our review of the infantry groups of the past we have noted that the composite mental state of the *men* of a group has always had a determining influence on the result of combat. We can do much with men in a malleable frame of mind; we have but little freedom of action with men whose mental attitude is that of unwillingness.

General Serrigny, of the French Army, details the reactions on morale caused by fear, and the relationship of these to freedom of action:

"First — Surprise is the principal element in the development

of fear. A danger heretofore unknown or coming on us unexpectedly, has an infinitely greater effect on an adversary than a known, foreseen danger. First-class German troops, habituated to most violent bombardments, fled when they saw our first tanks, little dangerous as they were. Our Nth Division, composed of our best regiments, showed themselves equally wanting in the first gas attack. Consequently we should seek new weapons and continually vary the methods of using those which we have.

"Second — Danger, though it may be remote and vague, produces a maximum morale effect when it appears at the rear of troops. Even though outnumbered and undergoing powerful enemy attacks, troops will easily maintain good morale if they realize that help is coming and if they know that they can break off combat at their will. *Morale is part and parcel of freedom of action.* Threats upon the rear of troops tend to deprive them of this freedom of action and lower their morale.

"Third — Loss of ground has little influence on the morale of the combatant; it has a very great influence upon the morale of the distant reserves, where fear develops in geometrical proportion to the amount of ground lost. The combatant worries only over an immediate danger—the blows of the enemy. When he gives ground, he receives fewer. If order is maintained, if flanks and rear are protected, if no bad news comes from the rear, there is nothing to lower his morale. This explains the calm attitude of our men during the retreat to the Marne. Reserves are much more susceptible to fear.

"Fourth — Lowering of morale is the result of the material means and the numbers put at work by the enemy. This is a proven fact. We should concentrate the maximum of machines and men upon decisive points.

"Fifth — If the material results obtained from an attack are not paying, the morale drops. The troops that have successfully resisted are cheered, while the attacker, who had high hopes, is correspondingly depressed. This is well illustrated by our failures to secure a decision in the Champagne and on the Somme, as well as in the efforts of the Germans at Verdun and in the attacks of 1918. In 1917 Pétain restored the morale of the French by mak-

ing only such attacks (Verdun and the Chemin des Dames) as were sure to be successful.

"Sixth — Fear is highly contagious. Therefore the developing of fear at a certain number of points along a front is sufficient to disorganize an army. This is why troops which have been affected by fear should not be reinforced, but should be relieved."

These statements of General Serrigny discuss the effect on morale of the activities of various agencies. These agencies include orders of higher authorities, our equipment in material, aid given by our supporting arms and, particularly, the actions of the enemy. He sums up the effects of all of these on that composite mental state of the battalion—its morale.

We shall take up General Serrigny's views later under the various conditions he mentions. *For the moment, it is sufficient to note that developing and maintaining good morale aids to a preponderant extent in maintaining freedom of action to apply power.* As battalion commanders ourselves, we should be able to attain marked results in our own efforts in maintaining freedom of action to apply power through the maintaining of morale. Needless to say, this is the part that most closely concerns us, because, as *field* officers, this is our job, and by the results attained will our efficiency be measured.

When we are confronted with the concrete case of our battalion in combat, we shall, as we have seen, find that various agencies *outside* of our battalion have placed limitations on our freedom of action to apply power. These limitations may be increased, or lessened even almost to the degree of complete removal. During the course of combat these changes in limitations on our freedom of action may come to us in orders resulting from new decisions on the part of our higher commanders. A higher commander issuing orders for the beginning of an attack or defense has certain basic facts on which he bases his decision, but with the ebb and flow of battle these bases change or disappear, and the higher commander has to make new decisions and announce them in orders. And therein lies one of the greatest difficulties of battle: the higher commanders have to make new decisions based to a large extent on reports that come from their front lines, and, by the time that the new decisions are made and conveyed in new orders to the

front line, the situation of the front-line troops may again have changed to such an extent that the new orders are no longer applicable. The absence of orders operates, sometimes, to leave the decision entirely to the battalion commander. *Need we say more to stress the importance of the means of communication, both for reporting information and receiving and sending orders?*

When we consider the arms and equipment of the battalion we conclude that the battalion commander must carry on combat with what he had when he started into battle. The terrain and the time of day will have to be accepted as we find them; terrain can be captured, positive action, and night can be waited for, but this latter measure we can apply but infrequently—if we have to do it, things are going slowly. The battalion commander can request assistance from the infantry heavy weapons and from the supporting arms—artillery, tanks, air corps and others—but he is never certain of receiving their support *unless they are under his command,* and even then the situation may prevent them from giving support. In the usual case, the battalion commander, in maintaining his freedom of action to apply power, is reduced to his rifle companies, his machine-gun company, any attached units and his will to use all of these, with such aid as may be given by the supporting arms. The battalion commander has to depend on the fire and movement of these units. Of the rifle companies he can demand movement and the power of automatic rifle, rifle, rifle grenade, hand grenade, pistol and bayonet. Of the machine-gun company he can demand a heavy volume of fire, with intermittent movement. Of the attached units he can demand such fire and movement as they can produce. The movement of the units of his battalion must be within the limits—wide or narrow, shallow or deep—imposed upon him by higher commanders. Within these limits, the battalion commander must make choice not only of positions the units are to move to, but also of the routes to these positions.

As regards the enemy, the battalion commander must keep himself secure: he must insure *troop security* so that they are not exposed to enemy fire without an opportunity of handing it back with interest, and he must have *command security,* so that he maintains his freedom of action to apply power. To make clear the difference between these two kinds of security, imagine all the units

of an attacking battalion taking shelter in deep dugouts; we could be sure that there would be complete *troop security* but, as the battalion commander would not know anything about the enemy, *command security* would be entirely lacking. And unless the battalion commander has *command security*, he is not fully able to apply power—his freedom of action is decreased. *So, to go no farther than the requirements of the battalion commander's freedom of action to apply power, we can conclude that he must insure the functioning of his service of security and information. This is accomplished by his placing security detachments in such positions as give troop security and command security.*

As battalion commanders we must be thrifty; we must not put all our eggs in one basket. We are required to carry on combat for a lengthy period and we cannot do this with assurance unless we have freedom of action, in time, to apply power. *Here we see that the maintaining of freedom of action in time requires that we have a unit whose power has not yet been applied; that is, we must have a unit in reserve.*

Finally, though it should be well known to all of us, we must make efforts to keep up good morale in our battalion. This is one of the principal preoccupations of a leader and one which cannot be expressed in rules. The methods of maintaining good morale are as varied as the leaders and are a study in themselves. Here it is sufficient to say that troops of bad morale have no freedom of action to apply power. Throughout history, successful troops have been those of good morale. *Good morale has always been necessary in maintaining freedom of action to apply power.*

In what precedes we find enough to show us the main requirements necessary to enable the battalion commander to do what he wants to do. The following out of these principles is the art of handling troops in the presence of the enemy—tactics, in other words—and we may conclude that:

$$\left.\begin{array}{l}\textit{Good infantry tactics}\end{array}\right\} = \left\{\begin{array}{l}\textit{Maintaining (to the extent}\\ \textit{allowed by orders) freedom}\\ \textit{of action to apply power}\end{array}\right.$$

Modern warfare presents two physiognomies. There is the type of warfare involving a stabilized situation or an approximation thereto; there is the type involving a mobile situation or some-

thing very like it. A mobile situation may crystallize into a stabilized situation; a stabilized situation may break up into a mobile situation. In its essence, a mobile situation is characterized by absence of fortifications, greater relative effect of the infantry than the field artillery and the necessity of rapidity of action. Similarly, a stabilized situation means development of fortifications, greater relative effect of artillery as compared with infantry action and the necessity of strict method in the attack.

But both of these types of warfare are war, and the principles applied are the same. The stabilized situation requires time for preparation of an attack, and this time will suffice for informing the battalion commander of the necessary details.

"Infantry, properly organized and trained for open warfare, will always be equal to the tasks of trench warfare. The converse is not true." In either situation, mobile or stabilized, the problem of the battalion commander is the same: *he must maintain his freedom of action to apply power.*

THE INFANTRY BATTALION IN WAR

PART 1
THE INFANTRY BATTALION

CHAPTER ONE: ORGANIC UNITS

I–The rifle squad; II–The rifle section; III–The rifle platoon; IV–The rifle company; V–The machine-gun section; VI–The machine-gun platoon; VII–The machine-gun company; VIII–The headquarters company; IX–The medical section.

NOTES: (1). The sudden occurrence of an emergency and the lack of a sufficient number of trained reserves may have the result that all companies of the battalion will go into battle with fewer men and weapons than are prescribed in any table of organization. During the course of battle we know that casualties will quickly reduce the numbers of men and weapons below those with which the battalion enters battle. Such squads of rifle companies and sections of machine-gun companies as are present will have the characteristics of fire power and movement described in this part. (2). Changes in tables of organization may alter the number of weapons in any particular unit, or the number of units in the battalion. But these changes will not affect the principles of the application of these weapons or units in battle as expressed in this text. (3). In this chapter, only the principal characteristics of fire and movement are given; the battalion commander is not concerned with the minute details.

I: THE RIFLE SQUAD

The rifle squad comprises eight men at most, grouped round an automatic rifle and led by a corporal. One man is designated to replace the squad leader in case of casualty. Two men act as scouts, one as assistant automatic rifleman and one as rifle grenadier. The squad leader lives with his squad at all times and is responsible that they are fed, equipped, and trained; in combat he sees that they

fight. A draft law may place in the ranks men up to the forties.

The squad leader carries on combat at a distance through men specialized in the flat-trajectory fire of the rifle and the automatic rifle, and the shorter-range, curved-trajectory fire of the rifle grenade and hand grenade. He leads hand-to-hand combat with bayonet, butt, knife, foot and fist. World War experience shows that in thirty-five per cent of answers to questionnaires sent to junior officers, it was stated that the bayonet had been used against the enemy.

The author of *Psychology and Neurology of Fear* writes: "One of the physical expressions of fear is a paralysis of the motor muscles of the eye." This is why battle scores are only about one-sixtieth as good as target scores. Considering the average rifleman, not the impassive sniper, we might think that a great deal of training in marksmanship is wasted if the eye muscles fail under stress. But a man is the better for knowing that he can make hits, which shows that training in material things tends to raise morale in battle.

The normal equipment of the squad enables it to advance at a walk and deliver assault fire, save for the pause necessary in firing rifle grenades. The movement of the automatic-rifle team is a little slower than that of a rifleman. The average weight of a rifleman's pack, fifty to sixty pounds, quickly exhausts a man if he is running. Rolls may be dropped before going into battle, the men carrying with them the haversack containing one day's reserve ration, possibly a cooked lunch, and mess equipment. The reserve ration frequently is not on the man. Each man has his canteen and first-aid packet. During the World War the procuring of water on the firing line was difficult. Undetachable canteen covers necessitated removal from them of the shiny, clinking canteens, which reflected light and produced noise that brought down enemy small-arms fire.

On entering battle each rifleman is supposed to have one hundred rounds of ammunition; each automatic rifleman is supposed to have four hundred eighty rounds in magazines. Each squad has a small supply of rifle and hand grenades when their use can be foreseen; some of these latter will be left behind surreptitiously in the first handy spot. The rifle begins to be effective from about six

hundred yards down; the rifle grenade can be used between thirty and four hundred yards; the hand grenade can be used up to forty yards. Self-loading hand weapons are becoming more effective and more portable; the future will see an increase of these, possibly to the extent of partial or complete supplanting of the individual hand-operated magazine rifle we now have. The sound of automatic-rifle fire is supposed to have a good moral effect on the side using it.

The squad sometimes has additional burdens. There may be extra bandoleers, extra loaded magazines for the automatic rifle, an extra canteen (in France the large French canteen was carried in addition to our own, which was too small), wire cutters and bridging material for wire or water.

During the Aisne-Marne Offensive, a lieutenant of the 26th Infantry with a small group of men pushed ahead and was partly surrounded by the enemy. They found it necessary to send back for more ammunition. Generally, extra rifle ammunition can be taken off casualties of the assault companies.

A man will wear and carry what is necessary for warmth and protection; even at that, many an infantryman will discard an overcoat in winter battle. He is chiefly concerned with the problem of killing the enemy and keeping alive during the next few hours; he will not carry the materials for future comfort if he thinks they reduce in the slightest degree his chance of life. In past campaigns troops have fought and immediately advanced long distances, but this is less frequent in modern times; moreover, supply facilities are better. The defending enemy do not handicap themselves with rolls; the attacker knows this and he will discard his. The infantry regiment commander, who knows where his battalions are and controls their transport, should regulate the dropping of rolls; it is not always desirable nor practicable to forbid it. Colonel Wise, of the Marines, writes: "I had found that men could not carry a full pack and fight, so there in our rest billets I stripped them down to combat packs. * * * The men fell in that night to go up to the trenches with rifle and bayonet, ammunition belt, canteen, and a pack holding their iron rations, their mess kits and their intrenching tools."

Years ago Marshal Soult wrote: "The soldier before dinner and

the soldier after dinner are two entirely different beings." A recollection of the Cantigny sector is of an infantryman who rose from a fox hole and showed his meat can containing a half-inch of stew. It had been issued him only a short time before but was already green with mold. He remarked that he could "fight all right but could do better if he had something to eat." The recently adopted reserve ration of cooked, tinned food will obviate future complaints of this sort provided that the rations can be pushed up to the front line, a job that is not always as easy as it sounds.

The squad leader has to be something of an engineer, for in each squad are one pair of wirecutters, two pick-mattocks, four shovels, one hand ax (or machete) and compass. The tools mentioned are the small type. For large-size tools see Chapter Four, A, Section V. He also has two marking panels that can be displayed to show the infantry airplane where his squad is located (Chapter Three, Section II). He may also have a projecting device for sending pyrotechnic signals.

The night before the Aisne-Marne Offensive, some squad leaders removed one of their spiral leggins and made each man of the squad maintain a grip on it; only by this means were they able to keep their squad together during the night march to the line of departure.

Usually, a battalion commander does not have to think in terms of the individual squad. But squads may be used as points of advance guards, patrols, outguards, connecting groups, to form a combat group in the defense, and in these cases the battalion commander has to consider their powers and limitations.

NOTES:

1. In the future there may be two automatic rifles in each rifle squad. In an attack one of the automatic-rifle teams could aid the advance of the other. Heretofore the maneuver of the rifle squad has been limited to a drive straight to the front; the adding of another automatic rifle will perhaps enable the rifle squad to maneuver in width to a certain extent.

2. The theory is that the men's rolls will be dropped, stacked, and left guarded at the place where the men are issued the extra ammunition from the ammunition section of the battalion combat train before going into battle.

II: THE RIFLE SECTION

The rifle section consists of three rifle squads. The section leader is a sergeant and has an additional corporal to assist and replace him. Like the squad leader, the section leader is usually chosen from among the men he commands. The squad leader gives his orders to the men who are to carry them out; beginning with the section leader and on up, orders are given to subordinate leaders and not to the individuals who actually do the work.

The section leader has the power of the weapons of three squads; he has a front of three squads, which enables him to maneuver them in the attack, as well as cross the fires of their automatic rifles in the defense. Occasionally, combat may require that a machine-gun section operate under the command of the section leader; in this case he will have two rates of movement to consider. The riflemen must always be able to keep nearby machine guns going by replacing casualties in their crews.

The battalion commander may have to think in terms of rifle sections: a section may be used as the advance party of an advance guard, an outguard, a connecting group, or to form a combat group in the defense.

NOTE:

Tables of organization (war strength) give strength of the rifle section as 1 sergeant, 1 corporal, 3 squads, 23 rifles, 3 grenade discharges, and 3 automatic rifles. Total: 26 men.

III: THE RIFLE PLATOON

The rifle platoon consisting of two rifle sections is the smallest unit that can be arranged in depth, i.e., one section behind the other. This is the usual formation at the start of an attack. Therefore we may say that the rifle platoon is the smallest unit having independent power of maneuver. Twelve men of the platoon are specially trained as scouts; two from each squad.

A lieutenant is assigned as platoon leader and has a sergeant as an assistant, also four runners. In action each front-line platoon has attached one first-aid man from the medical section of the battalion. It is very important that the platoon leader have a luminous compass for use at night, in fog, or in smoke; our regu-

lations state: "More attacks fail from loss of direction than from any other cause." The men of a rifle squad are always at the beck and call of their corporal, but as units become larger it becomes more difficult for the leader to keep all individuals under his eye. Moral influence is what binds together the larger units and the officer is supposed to be able to exercise this influence. Another reason for placing an officer as platoon leader is that he is the leader of a unit with which machine-gun sections may operate; he is supposed to be able to make use of them. Many rifle-platoon commanders will have only very general ideas as to how to use machine-gun sections attached to their units. If they are attached, the platoon commander will have two rates of movement to consider.

The rifle squad, rifle section, and rifle platoon are fighting units pure and simple; it is the leaders of these units that carry forward an attack. Obviously, they suffer heavy casualties and these units may be badly reduced within ten minutes after the start of an attack, and sometimes even before H hour. Writing of the Meuse-Argonne Offensive, an infantry colonel states: "No one can observe the advance of infantry against severe hostile fire without being impressed with the fact that the whole line is carried forward by a few brave leaders, each of whom in his little sphere steadies his group. Leadership is the supreme quality to win victories. A great leader is one who can get élan in action. It's nearly all a question of leadership."

The advance of small infantry units during the attack is described in a monograph written at The Infantry School. Speaking of the attack of the 27th Division in October of 1918 the writer states: "The saying that 'the infantryman can always take one more step and fire one more shot' was demonstrated to a most admirable degree. To see a group of men after taking hard punishment finally neutralize a position, only to be confronted with a similar problem from another point is discouraging beyond belief. It would seem no human being could stand it. In fact, they don't stand it. No group will long remain inactive under such punishment. They will go either forward or backward; a word or gesture from one man might decide which way. There is usually, however, some born leader, probably unconscious of that quality, in any group. He may be a private; often this is the case. But he thinks clearly and though he

probably has never heard of the technique of the 'Estimate of the Situation,' or the 'Decision,' he unknowingly does exactly these things. He starts doggedly forward. Instinct of the pack and the soldier's willingness to go with someone else, anywhere, decides for the rest and over they go. The above scene was enacted many times during this operation."

Platoon leaders usually are recently commissioned men. In a major emergency army, they will have had little peace-time training and no combat experience. It is one of the marked peculiarities of war that the newest officers have to be placed in direct charge of the lives of men on the firing line. A former sergeant of the 26th Division, twice wounded, holder of the Distinguished Service Cross, states: "It is my belief that fifty per cent of the casualties in action were due to the inexperience in leading of platoon commanders."

The battalion commander frequently thinks in terms of rifle platoons. In an attack he may direct the company commanders how to arrange their platoons. In a defense he may require that each company place one rifle platoon on the support line. The advance party of an advance guard, or a support of an outpost, may be constituted by a platoon; in the defense a combat group may comprise as much as one platoon.

NOTE:

Tables of organization (war strength) give strength of the rifle platoon as: 1 officer, 1 sergeant, 4 runners, 2 sections of 3 squads each, 2 pistols, 50 rifles, 6 grenade dischargers, and 6 automatic rifles. Total: 1 officer; 57 men.

IV: THE RIFLE COMPANY

The rifle company consists of three platoons and a company headquarters. The leader of the rifle company, the captain, is the most junior officer to have other officers under his command.

The leader of a rifle company usually has one platoon placed to the rear of the other two for either attack or defense. Sometimes he has a section or platoon of machine guns attached to his unit. In this case he has two rates of movement to consider and he must be competent to use these machine guns profitably. If tanks are

used, he must adapt his assault platoons' movement to that of the tanks.

From 1914 to 1918 the fire power of the rifle company increased fourfold due to the development of automatic weapons. This had its repercussion on losses, for a noncommissioned officer of Company H, 103rd Infantry, writes: "At the time of the attack on Bouresches, July 18, 1918, there were one hundred eighty-eight effectives in the line at 7:45 a.m. At 1:00 p.m. of the same day there had been sixty-eight men evacuated for wounds and gas, eight killed, a total of seventy-six, leaving one hundred twelve men on duty in the line."

The following table shows what happened to Company C, 103rd Infantry, 26th Division, on June 20, 1918:

1 officer	22 men	killed
1 officer	7 men	died of wounds
	4 men	shell-shocked
2 officers	100 men	wounded
1 officer	49 men	missing. These were lost and returned in a body the next day.
	6 men	on duty as runners
1 officer	18 men	reached their objective
6 officers	206 men	entered the engagement

In addition to being a leader in combat, the captain has to assure supply of his unit; he has a company headquarters to insure signal communications in various directions as well as to provide ammunition, water and food. Part of this company headquarters, the command group, is with the captain in combat, the remainder, under the officer second in command of the company, comprises the rear echelon which sends up water and food (Chapter Four, A, Section IV). The rear echelon is near the bivouac of the battalion section of the regimental field train. Ammunition is secured from the battalion ammunition distributing point (Chapter Four, A, Section I). Lack of officers frequently leaves the rear echelon in charge of a noncommissioned officer. In case he cannot get necessary supplies, the company commander will ask the battalion commander for them.

A recollection of the Cantigny sector concerns a pile of four or five marmites seen in a communication trench, riddled by machine-

gun bullets. The detail had escaped with wounds, but a burst or two of enemy fire had deprived one company of its breakfast, no small matter under conditions of cold and danger.

When they have opportunity to use them, all company commanders make use of the non-combat supplies in the battalion section of the regimental field train (Chapter Four, B).

The battalion commander deals usually in terms of rifle companies. In an attack they are assigned as assault companies or reserve; in a defense they are assigned strongpoints on the main line of resistance or on the battalion reserve line; in an advance guard a company is assigned as the support, or to the reserve; in an outpost it may be assigned as a support, or to the reserve.

NOTES:

1. Tables of organization (war strength) give strength of the rifle company as: 5 officers, 4 sergeants, 2 buglers, 4 runners, 3 platoons of 2 sections each, 18 pistols, 162 rifles, 18 grenade dischargers, 18 automatic rifles, and a rear echelon. Total: 5 officers; 193 men.

2. In 1935 orders from the War Department require that four machine guns be included in the equipment of the rifle company. This is recognition of the great effectiveness of machine-gun fire. It is presumable that these machine guns would be carried somewhere in the trains of the regiment and might be issued to the companies should the latter have a definitely defensive mission. It has been suggested that in a defense, where ammunition is accumulated beforehand, the extra men in the ammunition details of the machine-gun company could man these four machine guns of each rifle company.

V: THE MACHINE-GUN SECTION

A machine-gun squad consists of the men necessary to supply and serve one machine gun, and is commanded by a corporal. Two of these squads form a section commanded by a sergeant. Machine-gun units should always have rifle units near enough to give them local protection.

"In moments of crisis machine guns invariably constitute a strongpoint of support. These guns are free from the effect of trembling nerves and muscles, and for that reason are especially

valuable in supreme moments." Their use raises the morale of our troops and lowers that of the enemy.

The fire of a machine gun is a dense, easily controlled cone of bullets of greater effective range than is produced by rifle fire. The machine-gun section is the fire unit; use of two guns together insures continuity of fire in case one gun goes out of action. Machine guns are used to fire on a visible enemy and to harass areas suspected of being used by the enemy; if the targets are large, the ranges used may be as great as three thousand to four thousand yards. They can be used against low-flying airplanes. They can be easily concealed in firing positions, thereby facilitating surprise. During an attack, machine-gun units advance by echelon, which enables continuous support of the rifle companies. Only a few seconds are required to put them in action. On the march some guns will be on antiaircraft mounts ready to open fire immediately. The MI ball cartridge has a maximum range of six thousand yards; its best ranges are from one thousand yards down. Depending on the terrain, the length of the final protective line that can be covered by the fire of a machine-gun section in the defense varies from one hundred fifty to seven hundred fifty yards. Having a fixed mount, the machine gun can be clamped in any elevation and direction; this ensures accurate fires at night and in fog and smoke.

Machine guns usually are transported on vehicles or pack animals, and can keep up with the rifle companies fairly well. They can be carried by hand, but are a killing load. If the vehicles can be kept near the guns, movement and supply will be expedited. During an attack the supply of ammunition is difficult; in a defense large quantities can be placed near the guns.

A machine-gun section may be attached to a rifle unit, in which case it comes under orders of the commander of the rifle unit.

The commanding officer, 115th Machine-Gun Battalion writes: "With the second wave, a platoon from the regimental machine-gun company started to advance but was soon pinned to the ground. Enemy machine guns seemed to concentrate on them before they had advanced fifty yards. By the use of the cover afforded by a shallow ditch one section of Company B was advanced to a position which gave flanking fire on the enemy positions. This ditch was so shallow that the section leader got several bullets

through his pack as he crawled along on his belly." This extract shows that machine-gun units, like rifle units, can worm their way forward under fire.

Writing of the second day in the Aisne-Marne Offensive, the commanding officer, D/116th Infantry, states: "A halt was made on the line held by the outposts of the 2d Battalion, as we were now apparently visible to several machine gunners as well as to artillery observers. Casualties were numerous; yet we had not seen a single German during the day. * * * Machine-gun fire from the Chazelle ravine attracted my attention and I discovered a stone emplacement with a gun crew in it, firing at the 18th Infantry. These gunners were below us and about five hundred yards away and apparently had not noticed our approach. I borrowed a rifle and fired several shots at them. Some of the machine-gun crew hastily withdrew, leaving their gun in position. This incident is worthy of note as it was the only German machine gun I saw in operation throughout this engagement. We had been fired at by scores of them but in every case, excepting this one, their location was so well concealed that we could not fix their position even while they were firing."

VI: THE MACHINE-GUN PLATOON

The machine-gun platoon consists of two machine-gun sections, a total of four machine guns. It is commanded by a lieutenant, with a noncommissioned officer as second in command. There is a group of men who insure signal communications and the supply of ammunition and water.

The platoon is the normal combat unit; its commander is given missions by the commander of the machine-gun company. Under certain combat conditions, the machine-gun platoon may be attached to a rifle unit, in which case the platoon lieutenant would take orders from the commander of the rifle unit.

NOTE:

Tables of organization (war strength) give strength of the machine-gun platoon as: 1 officer, 1 sergeant, 2 corporals, 4 messengers, 2 sections of 2 squads each, 4 machine guns, 4 machine-gun carts (or motor vehicles), 4 ammunition carts (or motor vehicles), 49 pistols, and 5 rifles. Total: 1 officer; 53 men.

VII: THE MACHINE-GUN COMPANY

The machine-gun company consists of three platoons of four guns each. Animal-drawn carts, pack mules or motor vehicles are used for transport. The company commander has a company headquarters which includes a reconnaissance officer and signal communications group. Like the commander of a rifle company, he has a second in command who, during battle, stays back with sufficient personnel and material to supply and feed the company; this rear echelon is near the bivouac of the battalion section of the regimental field train. On the machine-gun vehicle there are some four thousand two hundred fifty rounds and on the combat vehicle of the battalion combat train some two thousand five hundred rounds, a total of some six thousand seven hundred fifty rounds per machine gun (Chapter Four, A, Section I). This is thought to be enough to keep the guns in action until additional supplies are brought up. A small proportion of this is armor-piercing and tracer ammunition.

As machine guns act by fire alone, the machine-gun company is incapable of independent action. It is an integral part of the infantry battalion, and decisions as to its tactical use rest with the battalion commander. The volume of fire it can produce and the fact that its units can be placed in depth mark it as a unit capable of great use in both attack and defense.

The commander of the machine-gun company acts as machine-gun officer on the staff of his battalion commander, and should be in close touch with the battalion commander at all times. The fact that there is a reconnaissance officer with each machine-gun company shows the importance of this company in the operations of the battalion.

NOTES:

1. Tables of organization (war strength) give strength of the machine-gun company as: 6 officers, 5 sergeants, 1 corporal, 2 buglers, 5 messengers, 3 platoons of 2 sections each, 12 machine guns, 12 machine-gun carts (or motor vehicles), 12 ammunition carts (or motor vehicles), 162 pistols, 26 rifles, and a rear echelon. Total: 6 officers; 182 men.

2. Any spare guns in the machine-gun company can be manned by crews improvised from any men who can be spared from other

duties; this might be done in a defense when ammunition carriers are not needed.

3. The commander of the machine-gun company must remember that there are four machine guns in the equipment of each of three rifle companies, a total of twelve extra machine guns in the battalion.

VIII: THE HEADQUARTERS COMPANY

The headquarters and headquarters company of the infantry battalion furnish a second in command (who is also executive officer), most of the staff, other personnel, and equipment necessary to enable the battalion commander to carry out his functions. During battle the rear echelon of the headquarters company (under the first sergeant), with similar parts of other companies of the battalion, is back near the bivouac of the battalion section of the regimental field train. The headquarters company is commanded by the battalion adjutant (S-1).

As we shall see later, all functions of the battalion commander fall under the three headings of automatic, intelligence and operations functions; let us take up the headquarters company under these headings.

Automatic functions. These include signal communications, supply and evacuation; i.e., everything that is routine or automatic in its nature.

The adjutant (S-1) assists in these functions. He establishes the battalion command post and in doing this has the assistance of the communications officer and his platoon of about twenty-eight enlisted men. This platoon operates the message center and maintains communication with the units of the battalion, with the regimental command post, with adjacent battalions and with the supporting light artillery by means of messengers, wire, radio and visual signaling. The equipment is on the communications vehicle that moves along with the platoon. Sudden declaration of a major emergency, or combat casualties, may reduce the communications platoon to only runners. The best bodies and brains are needful for the job of runner. In battle, company and attached unit commanders send runners to report to the battalion commander; these men augment the strength of the communications platoon. In his

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turn, the battalion commander sends runners to report to the regimental commander.

Maintaining signal communication is very important and very difficult. If we make efforts to fully exploit every individual and material aid in keeping up communication, yet maintain skepticism concerning a one hundred per cent degree of perfection in their operations, our plans will not be too greatly upset if material fails to be on hand or ceases working. In the situation of the II/28th Infantry referred to in the preface, the battalion commander and a few runners were all that was left of the forward echelon of his headquarters company after only a short advance (Chapter Fifteen).

The battalion adjutant (S-1) has other duties: he guards the command post; takes charge of prisoners and takes measures to stop and return stragglers; handles headquarters vehicles and animals, and controls traffic; he keeps constantly informed of the effective strengths of the battalion units; he handles any replacements that arrive during battle.

The supply officer (S-4) insures the supply of ammunition, water, and food. The transport necessary for this comes from the battalion section of the regimental service company. He is assisted by cook and supply personnel of each company in the battalion (Chapter Four, A, Sections I, IV, and B). The supply officer (S-4) controls the movement of all transport operating with or near the battalion; he also observes the evacuation of casualties.

The battalion surgeon is an exception; he, his personnel and equipment are not a part of the battalion headquarters company but belong to the battalion medical section, which is not an organic unit of the infantry battalion (Chapter One, Section IX; Chapter Four, A, Section III). He is charged with the care of the wounded and with their evacuation.

Intelligence functions. These include intelligence concerning the enemy and the terrain, i.e., what opposition the battalion commander will have to meet and what obstacles he will have to overcome. Transmission of intelligence to interested parties is also included in these functions.

The intelligence officer (S-2) assists in these functions, and for this purpose has the aid of his intelligence platoon consist-

ing of about twenty-one men. He establishes and operates observation posts. He sees that observation is carried on, that patrols are sent out to reconnoiter and that intelligence personnel is attached to these patrols. He searches and questions prisoners. He issues maps. His primary job is to keep the battalion commander and all others informed regarding the enemy's situation and probable intentions (Chapter Thirty-one, Section III).

Operations functions. These include everything done to overcome the enemy.

The plans and training officer (S-3) assists in these functions. In combat he is the tactical specialist of the staff and must be able to work out any detail or settle any minor point to carry out the commander's decision. He is charged with study of the situation and of orders received from higher units and those issued by adjacent units. He must keep informed of the location, strength and morale of all elements of the battalion and of supporting and adjacent units. He confers with the commanders of organic, attached, supporting and adjacent units and with the officers of the battalion staff. When required, he estimates the situation and makes plans. When time is available he prepares field orders, produces any accompanying maps and distributes them promptly. He is charged with movement of troops, security measures, reconnaissance and maintenance of connection with adjacent units. Personally, or through assistants, he observes movement and combat. He supervises the work of the communications officer. He keeps the battalion situation map and the battalion journal.

The commander of an attached howitzer platoon acts as the battalion commander's staff officer for these weapons (Chapter Two, Section I).

The artillery liaison officer acts as the battalion commander's staff officer for artillery (Chapter Three, Section I).

If a tank unit is attached to the battalion, the tank officer acts as the battalion commander's staff officer for tanks (Chapter Two, Section III).

NOTES:

1. The equipment of the communications platoon includes: radio set for telegraphing to or from the regiment, adjacent battalion (of the same regiment) and supporting artillery, 4 telephones, 2 miles

of wire (2 additional miles with regimental headquarters company), 1 buzzer, 2 signal lamps, 2 Very pistols (or signal projectors), necessary accessories for the above and 1 motorcycle with side-car.

The infantry regimental commander is responsible for placing resupplies of signal equipment at the disposition of the battalion commander (Chapter Thirty-one, Section II).

2. When infantry units are increased to war strength in a major emergency, it will be found that more and greater changes take place in the battalion than in the company, regiment or brigade. Under peace-strength tables of organization the company, regiment and brigade have practically all of the elements that go to make up the war-strength unit. But when a battalion is increased to war strength a totally new unit, the battalion headquarters company consisting of seventy men, has to be created; the one battalion adjutant and one battalion sergeant major of peace-time increase to a staff of six officers with a headquarters group of several enlisted men, all of whom have to be trained. In other words, in time of peace the battalion commander has no opportunity of working with the headquarters company and the staff which, in a major emergency, will have to be created and trained to help him in the difficult task of commanding his battalion.

IX: THE MEDICAL SECTION

This section consists of two officers and twenty-one men. The senior officer is surgeon on the battalion commander's staff. While it is not an organic unit of the battalion, this section is constantly with the battalion. A good medical section is an aid to morale. This medical section of the battalion is not to be confused with the medical regiment detachment which is attached to the infantry battalion only on special occasions (Chapter Two, Section VII).

The medical section provides the personnel and equipment necessary to aid the battalion commander's automatic functions of care of the wounded and their evacuation (Chapter One, Section VIII; Chapter Four, A, Section III; Chapter Thirty-one, Section II).

In battle, two first-aid men supplied with dressings, tourniquets, emergency tags, small instrument case and water are attached to each company; one to follow behind each assault platoon.

The remainder provide litter squads that evacuate litter cases to the battalion aid station, and the personnel necessary to operate the aid station. The collecting battalion of the divisional medical regiment takes care of evacuation from the battalion aid station.

At the beginning of each march the battalion medical section turns over the sick to the divisional medical regiment.

The equipment of the battalion medical section is carried in a 4-mule wagon, a motor vehicle or on pack mules. This transport is called the medical section of the battalion combat train.

A British battalion surgeon, Captain Robert V. Dolbey, writes: "A battalion surgeon who is not up with the companies is no good. To expect wounded men to be brought half a mile or so to the rear to a dressing station, is to ask too much of stretcher bearers; to require a wounded man to cover the dangerous half-mile behind the trenches, helped along slowly by his pal, is to provide the sniper with a mark of which he well knows how to take advantage. Often and often, times without number, have unwounded men been sacrificed in bringing back a wounded man to the doctor." This extract points out some of the problems of evacuation from the front lines. Describing evacuation at night, the same writer says: "The stretcher-bearers, now across the river, worked like the good fellows they were and toiled up the slippery clay banks with their painful freight all through the night. But it was hard to find the wounded in the dark and some were very still; and those that lay far out in the wood kept silent, when help was so close, for fear we were an enemy patrol that had come searching through the wood. Wounded men, like wounded birds, creep into ditches and bushes to hide. Wounded men in a wood at night! The recollection yields nothing in horror to Dante's 'Inferno' itself. Not until 3:00 a.m. did we cease to hunt and find and bring them in; and then we left some out. * * * Most important is it that a responsible person, though medical officer himself, should go where his stretcher-bearers do; for there are good and bad stretcher-bearers. And if the search for wounded is not systematically laid out by the doctor, he may be certain that some will be left out all night."

CHAPTER TWO: ATTACHED UNITS

I–The regimental howitzer platoon; II–The light-artillery section; III–The tank unit; IV–The regimental pioneer platoon; V–The engineer detachment; VI–The chemical platoon; VII–The medical regiment detachment.

NOTE: In this chapter only the principal characteristics of fire, movement or duty are given; the battalion commander is not concerned with the minute details.

I: THE REGIMENTAL HOWITZER PLATOON

The howitzer platoon is a unit of the regimental howitzer company, commanded by a lieutenant. It comprises the personnel and equipment necessary to serve and supply one 37-mm. gun and one 3-inch trench mortar. Carried on carts, motor vehicles or pack mules, these weapons may be able to keep up with the rifle companies; carried by hand they are burdensome and likely to fall behind. Being fired from a halt, their support is intermittent. When a howitzer platoon is attached to the infantry battalion, its commander takes orders from the battalion commander.

The 37-mm. gun is a flat-trajectory weapon enabling rapid, accurate fire up to about fifteen hundred yards. It is easily concealed, but its flash and dust disclose its position; this necessitates frequent changes to different firing positions. It enters combat with some two hundred twenty-four rounds of ammunition, is fairly easily supplied with more and is effective against enemy machine guns and antitank weapons but not always effective against armored fighting vehicles. It would endeavor to hit vulnerable parts of armored fighting vehicles. It is seldom used against personnel.

The 3-inch trench mortar is a curved-trajectory weapon ranging from one hundred to eight hundred yards. Mortar and ammunition are cumbersome. It can be concealed in depressions and can rapidly lob its projectiles into depressions occupied by the enemy.

It can be used also against targets whose general location only is known. It enters combat with some seventy-five rounds of ammunition. There is a small supply of smoke shell for it in its combat vehicle. Its shells should not be dropped within two hundred yards of friendly troops. It is useful against both personnel and material.

When a howitzer platoon is attached to the infantry battalion, its combat vehicle reports to and operates under the battalion supply officer. (Chapter Four, A, Section I).

An Infantry School monograph states: "The 3-inch trench mortar proved totally inadequate in open warfare due to the excessive weight of both the mortar and ammunition. After the first day it was abandoned and the crew given rifles." This extract indicates the degree of effort that must be put into getting forward the 3-inch trench mortar and its ammunition if we are to have its valuable support in the later stages of battle.

The commander of the 37-mm. gun platoon of the 26th Infantry describes the use of a 37-mm. gun on October 4, 1918: "The commander of the 2d Battalion called for the 37-mm. gun and indicated a definite machine-gun post. It was difficult to find suitable cover but we finally crawled out into a shell-hole, dragging the trail and gun by the pulling-ropes and took with us some brush for cover. Our target was in the edge of a woods about eight hundred yards to our right front. Three men and myself lay at the gun. I fired the first three rounds and was induced to give way to the pleading of the gunner who got on the target in about six rounds and then pumped two boxes at them. About this time a German 77, firing direct, started to search the high ground from which we were firing and got in some terrible harassing fire on the riflemen of the battalion who were in most cases lying flat on the ground with no cover. A good many of them exposed themselves watching the effects of our fire. One platoon commander lying close to our position kept complaining while we were firing that in a little while we would bring down a barrage and get them all killed, and it looked as if he was about right. Shortly after we got on our target we saw Germans leave the edge of the woods and beat it to their rear."

NOTES:

1. In the course of time the 3-inch trench mortar of the regi-

mental howitzer company may be replaced by the 81-mm. Stokes-Brandt. This weapon has a range of twelve hundred yards with a heavy shell and a range of thirty-four hundred yards with a light shell. The bursting radius of the light shell is about twenty-seven yards, making it about equal in effect to a 75-mm. light artillery shell. The heavy shell, equally effective against personnel, also has a considerable effect on wire entanglements. The 81-mm. Stokes-Brandt mortar is a highly accurate weapon.

2. All of these weapons can conveniently be termed the "infantry heavy weapons."

3. A range of eighteen hundred yards can be obtained with the 3-inch trench mortar by using a projectile with a vane type tail.

II: THE LIGHT-ARTILLERY SECTION (ACCOMPANYING GUN)

The accompanying gun comprises one gun (75-mm.), two caissons, one extra 6-horse team and signal communications equipment provided by a light-artillery regiment of the division. It is usually commanded by an officer. If available, the 75-mm. pack howitzer can be used. The light-artillery section may be motorized.

The gun commander should be able to command the gun by voice. In addition he will have to be where he can observe fire and he should be near the infantry battalion commander. Direct laying usually is employed.

The accompanying gun is not to be considered as supporting artillery close at hand. Its fires are reserved for special emergencies; the smallness of its ammunition supply (about one hundred fifty rounds at the start) and the difficulty of replenishment forbid casual use of its fires. Moreover, the gun is vulnerable because it is near the front line; it can be heard, seen and fired on by enemy weapons. Its only hope is in being wisely used and in being able to fire so accurately and rapidly that it can execute its mission promptly and then change position. The range usually used is from fifteen hundred yards down.

If future conditions bring infantry in contact with enemy armored fighting vehicles, battalion commanders will need, close at hand, a weapon that can stop them. Our infantry weapons of

the present day cannot always be counted upon to oppose armored fighting vehicles with complete success.

Our field manuals contemplate the use of sections of light artillery commanded by a noncommissioned officer for defense against enemy armored fighting vehicles from a range of one thousand yards down. The *Field Artillery Field Manual* states that the use of antitank guns is normally limited to defensive actions. They are not attached to infantry battalions, but would be placed near them.

Writing of the attack of the 1st Division on October 4, 1918, the commanding officer, I/26th Infantry states: "The accompanying guns were all put out of action at the jump-off and did little more than add to the casualties of the day." At the defense of Flesquières in 1918, it is stated that a German officer manning a field gun knocked out sixteen British tanks before he was killed. More recent information on the Flesquières episode indicates that five tanks were knocked out by two or three German batteries.

During the World War the accompanying gun did not accomplish what was expected of it. This was "due in part to the large and vulnerable target which the 75-mm. gun presents, but more largely to the inexperience of the local infantry and artillery officers concerned in the tactical handling of the weapon." (The Lewis Board).

NOTES:

1. The future may require that more than one section of light artillery (accompanying gun) be attached to the infantry battalion in the attack. If so, the only change necessary in the text is to read "accompanying guns" instead of "accompanying gun."

2. While its inability to traverse more than a few degrees hampers its use, the present 75-mm. field piece is one of the best antitank weapons now (1936) available (Chapter Two, Section III). A carriage permitting a much wider traverse is being developed.

3. If the enemy can place smoke screens that will blind the accompanying gun or guns in conjunction with an attack by enemy armored fighting vehicles, it would be highly desirable that the accompanying gun be on a motorized mount so that it can change position in order to repel the enemy armored fighting vehicles. If, for example, the enemy lays smoke screens with airplanes and the

accompanying gun has to change position through the use of perhaps distant teams, the enemy armored fighting vehicles would be among our infantry long before the accompanying gun could open fire against them from a new firing position. Tanks moving around at night would be particularly annoying to infantry, and smoke during daylight produces similar conditions.

4. In 1936, experiments indicate that an armor-piercing, caliber .30 weapon, effective against armored fighting vehicles, may be available in the future.

5. The caliber .50 machine gun may be employed in the battalion area against enemy armored fighting vehicles; if so, it probably would be attached to the infantry battalion.

III: THE TANK UNIT

Tank units attached to an infantry battalion may be: a company of slow 6-ton tanks composed of three platoons of five tanks each; a platoon of five fast tanks; a platoon of three slow, heavy tanks. The fast tanks and the slow, heavy tanks have greater fire power than the slow 6-ton tank.

When a tank unit is attached to an infantry battalion, the tank unit commander is under the orders of the battalion commander, who will give the tank unit commander definite missions to carry out, but refrain from specifying methods. Unless the battalion commander is also a tank specialist he will do well to consult the tank unit commander regarding its use; the tank unit commander acts as staff officer for tanks on the battalion commander's staff (Chapter One, Section VIII; Chapter Thirty-one, Section IV).

Tanks are armed, armored fighting vehicles; they vary in weapons, armor, size and speed. Tanks are used to help the assault battalions over the last few hundred yards before coming to grenades and bayonets with the enemy. The tanks move on the enemy points of resistance, breaking through their protective obstacles, crushing them, firing on them and attracting their fire until the assault companies have captured the objective. The tanks, which cruise around to avoid presenting a fixed target, then move back to the assembly point somewhere behind the forward elements of the battalion; they cannot pause in the open without risk of being de-

stroyed. The use of smoke in blinding enemy observers or anti-tank weapons may be advisable.

If tanks can be brought up unseen and unheard, attacking infantry can dispense with part or all of its artillery supporting fires. The use of tanks is conducive to surprise; their moral effect on the enemy is great. Tanks are particularly useful to the infantry battalion when supporting fires of the light artillery are unavailable, or when conditions are such that the supporting artillery is unable to fire without danger of hitting its own infantry.

Speaking of the use of tanks in the attack of the British Third Army toward Bapaume on August 21, 1918, Brigadier General C. D. Baker-Carr says: "Once more the weather was in our favor. A heavy mist enveloped the front and, though it made the steering of the tanks difficult, it enabled us again to fall upon the enemy and take him completely by surprise.

"The artillery preparation, which until the Battle of Cambrai had been regarded as indispensable, was now completely discarded. The enemy, entirely in the dark as to the spot chosen for our next attack, was unable to mass his reserves behind the threatened point. The initiative lay in the hands of the British, and we could strike when and where we wished, without giving our opponents the least inkling of our intentions."

The tank unit should be used only to accomplish a mission vital to the success of the attack of the infantry battalion; its great and valuable power should not be expended casually. If reconnaissance is necessary for rifle units that can move quietly and relatively easily over most varieties of terrain, we see that tank unit officers must have an opportunity to reconnoiter both for their movement toward the line of departure and for their movement forward from that line, and still have sufficient time left to issue orders and move up their tanks.

The tanks, having been given a definite mission, an assembly point and an alternate assembly point by the infantry battalion commander, will move up to the assault position and move out with the line of scouts, thence, at full speed, to the accomplishment of their mission. A method that more thoroughly insures surprise is to halt the tanks from twelve hundred to two thousand yards to the rear and then have them start forward sufficiently early to be

able to cross the line of departure at the desired time. Speedy tanks require care in timing. The noise of artillery fire and that of low-flying airplanes has sometimes been used to drown out the noise of tanks moving into position for attack. Smoke has sometimes been used successfully in blinding enemy observation of attacking tanks.

If there is a distance of three hundred yards between the assault company elements and the tanks, the riflemen will be safe from any "overs" that may be fired at the tanks.

Writing of the Flesquières episode, Brigadier General C. D. Baker-Carr states: "Only at a few points was serious resistance encountered, though in one case a heavy loss of tanks occurred, partly through evil fortune, partly through the heroism of one single German officer, and partly through a somewhat 'ca' canny' attitude on the part of the accompanying infantry.

"The tanks, followed at too great an interval by the infantry, topped a slope outside the village of Flesquières. On the far side of the crest stood the relics of a German field battery. One gun and one officer alone remained. With splendid devotion and self-sacrifice, this officer fired his gun at point-blank range as the top of each tank appeared above the crest-line and knocked out no less than sixteen of them before he himself was killed beside his gun.

"The result of this check was far-reaching. The triumphant advance was badly delayed and much valuable time lost. It was not only vexatious in the highest degree, but doubly so in that the incident should never have taken place. * * * The result of this (faulty) method of 'coöperation' was that the tanks outdistanced the laggard infantry and were massacred by the action of a single man whom one well-directed bullet would have settled. If the whole-hearted faith (in the tanks) of the 62nd Division had been displayed by the commander of the 51st Division, the check at Flesquières would never have taken place and no 'regrettable incident' would have marred our progress."

The commanding officer, III/26th Infantry, describing the day of October 5, 1918, in the Meuse-Argonne, writes: "Six tanks, covered from observation by the heavy fog of that morning, passed through the battalion at this time on their way forward to assist the assault battalion in the attack at 6:30 a.m. It may be noted

here that not one of these tanks reached the position of the assault battalion, being put out of action by hostile artillery fire before they could reach the forward position. Three of them were hit on the high ground northeast of la Neuville le Comte Farm; one was destroyed as it emerged from the woods in front of Hill 212, and two were almost consumed by thermite shells in the valley east of the St. Germain Farm. Guns on Hill 240 were mostly responsible for the destruction of our tanks." The ranges from Hill 240 were from twenty-three hundred yards down to thirteen hundred yards.

If defending infantry takes up a position behind unfordable water, marsh, closely strewn, large stones, thick, large trees, or gullies with very steep slopes, attacking armored fighting vehicles may be unable to approach.

Major General Sir Frederick Maurice in his *The Last Four Months* stresses the preponderant effect of the infantry in clearing the Argonne: "To clear these heights and enable the center to advance, the American left had to force its way forward through nine miles of the most difficult country on the whole Western Front. Under modern shell-fire woods become an almost impenetrable tangle of fallen timber, which affords ideal nests for the enemy's machine guns. This tangle was made still more difficult by cunningly placed wire entanglements and stretches of rabbit netting. The forest is cut up by deep ravines with almost precipitous sides, which made it very hard for the infantry to keep touch, while tanks could be of no help to them, and even the most experienced artillery would have been put to it to give them support. It was a question of hard slogging infantry fighting, and the American infantryman did slog hard, and after eleven days of continuous, grim, dogged effort, by October 10 he had won his way through."[1]

Details bringing forward ammunition, water and food have sometimes placed them on tanks, pulling them off as the latter reached the desired place.

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[1]From *The Last Four Months: How the War Was Won*, by Major General Sir Frederick Maurice. By permission of Little, Brown & Company, publishers.

NOTES:

1. In 1936 armored fighting vehicles have developed to the point where one 75-mm. gun and four machine guns have been mounted in them. One variety of armored fighting vehicle has attained a

cross-country speed of twenty miles per hour. Small individual tankettes have been developed by at least one foreign power. Types of tanks and similar weapons will not be specified in this study; they are all "armored fighting vehicles," which means that they are armed, armored and move at different rates of speed. Armored fighting vehicles are the "movement" reply to the "fire" question raised by the automatic small arm.

2. The presence of enemy armored fighting vehicles means that the infantry battalion must have instantly available the weapons necessary to beat them off. This means that the infantry battalion must have a weapon more appropriate than the caliber .30 machine gun, the 37-mm. gun or the 3-inch trench mortar (Chapter Two, Section II).

One of the best antitank weapons available (1936) is the 75-mm. field piece. If the enemy can blind our antitank gun or guns by an airplane smoke screen, he will be able to get into our infantry battalion unless the accompanying gun can promptly change position to and open fire from some point that has not been blinded. This indicates the necessity of a motorized mount for the accompanying gun.

3. In 1936, experiments indicate that an armor-piercing, caliber .30 weapon, effective against armored fighting vehicles, may be available in the future.

4. It is possible that tanks may be equipped with smoke-producing apparatus. As such use of a tank would make it a very definite target for enemy fire, it is believed that using it to produce smoke screens would be limited to withdrawals when conditions are favorable.

IV: THE REGIMENTAL PIONEER PLATOON

The pioneer platoon is an organic unit of the regimental headquarters company; it consists of one officer and about thirty-three men. Its personnel is specialized in engineering work: roads, stream crossings, soils, water supply, tools, demolitions, destruction of enemy mines, construction of command and observation posts, gas-proofing, preparation of traffic signs. During an attack it assists the advance of armored fighting vehicles, accompanying guns and the infantry heavy weapons.

Detachments of this platoon may be attached to the infantry battalion to supervise work of the above character.

V: THE ENGINEER DETACHMENT

A detachment of engineers from the engineer regiment of the division may be attached to the infantry battalion for breaching wire, bridging trenches or streams, helping forward armored fighting vehicles, executing demolitions, or for other purposes. It may provide material for and, by technical advice, help the battalion in preparing for a defense. In a defense it would bring along with it the engineer vehicle containing materials and large-size tools (Chapter Four, A, Section V; Chapter Twenty-eight, Section II). An engineer detachment might well be attached to a battalion on an advance-guard or rear-guard mission.

As obstacles are placed with reference to the fires of infantry units, the infantry commanders will tell the engineers where to place them.

Engineers may establish mine fields against enemy armored fighting vehicles.

The 2d Engineers helped the assault battalions of the 2d Division to dig in on the night of July 18, 1918, as did the 1st Engineers for the 16th Infantry on October 4 in the Aire Valley. The engineers of the 29th Division placed wire in front of the I/116th Infantry after the last objective was taken on October 25, 1918. Usually, the infantry will have to do these jobs itself. Despite the preparations and gallantry of engineer units, infantry may have to make its own way across streams, as did the 47th Infantry in crossing the Vesle at Bazoches.

VI: THE CHEMICAL PLATOON

Natural fog has its advantages and disadvantages in battle; chemical agents are able to produce artificial fog. Accurate fire and controlled movement depend upon our ability to observe, and fog reduces or nullifies observation. Smoke is of short duration and requires a favorable wind.

If we can cover our enemy by smoke and be clear of it ourselves, we may be able to reach the enemy with fewer casualties and less fire. Smoke that prevents the enemy from observing us is desirable

in attack and defense, provided it does not hamper our freedom of action.

Describing the defensive of the 38th Infantry along the Marne in July of 1918, the commanding officer, III/38th Infantry, writes: "The German use of smoke on the Marne, with the hope that it would cover the construction of the bridges and the crossing of troops was, as usual, of little avail. Smoke, to be at all effective, must blind the enemy and prevent him from seeing in any direction. A cloud hanging over certain areas in which friendly troops are to operate is worse than no smoke at all."

Future intensified use of chemical agents in warfare may result in the presence with the infantry battalion of a chemical platoon for the purpose of aiding the battalion in battle by use of smoke, gas or flame-throwers. Armored fighting vehicles will be able, possibly, to place smoke along positions occupied by the enemy; as can aircraft and artillery.

The chemical platoon produces smoke, its most effective use, by firing white phosphorus from its four 4.2-inch mortars; white phosphorus is also a casualty producer. In the attack the chemical platoon can fire two-minute concentrations of nonpersistent gas or white phosphorus on targets such as enemy machine guns, 37-mm. guns, antitank guns or other enemy resistances; it can also place screens of smoke on enemy observers to front or flanks in order to cover movement of our infantry over exposed ground. In the defense the chemical platoon can place persistent or nonpersistent gas on likely avenues of enemy approach, dead spaces or other areas; if warning of the enemy attack is given sufficiently in advance, this gas can be placed before the enemy advances, leaving the chemical platoon free to execute additional fires during the defense. All firings of smoke or gas require careful consideration of wind conditions.

VII: THE MEDICAL REGIMENT DETACHMENT

On the march, a 4-mule ambulance or a motor ambulance from the medical regiment may be attached to the infantry battalion.

When the infantry battalion is employed on a special mission, a detachment of the medical regiment (details from the collecting and ambulance battalions) may be attached to the battalion.

This detachment is not to be confused with the medical section (Chapter One, Section IX), which is virtually, though not actually, an organic unit of the infantry battalion.

Any personnel and material of the medical regiment attached to the infantry battalion will march with the medical section of the battalion combat train (Chapter Four, A, Section III).

CHAPTER THREE: SUPPORTING ARMS

I–The light artillery; II–The infantry airplane.

NOTE: In this chapter only the principal characteristics of fire, movement and duty are given; the battalion commander is not concerned with the minute details.

I: THE LIGHT ARTILLERY

If the infantry battalion will carry on combat as forcefully as it can with its own powerful means before calling for aid from the artillery, its attack will maintain the speed so necessary in breaking up an enemy's system of defense. This speed, it may be remarked, helps insure the safety of the attacking infantry battalion, for the artillery fire and the long-range machine-gun fires of the defending enemy cannot be put down on an area in which the opponents are changing places rapidly. Movement is characteristic of the attack; its importance in defense is much less marked. Any pause in an attack gives the enemy a chance to pull himself together.

The infantry battalion usually will be able to do its work better if it has artillery support; it will be in situations in which artillery support will be necessary; it may find that it has to attack or defend with no artillery support whatever.

In the discussion of the evolution of the infantry battalion we noted the increasingly close relationship between the infantry battalion and the supporting light artillery, the importance of which is indicated in the expression "the infantry-artillery team." Sustained success of the infantry battalion in combat is best assured if at all times the infantry battalion commander is able to secure fires from the light artillery where and when he wants them. Careful arrangements are made to insure coöperation of the two arms, but these arrangements sometimes fail during combat, leaving the infantry battalion dependent on its own resources. This is particularly likely to happen in the opening battles of a war.

As a rule, American battalions had numerous artillery supporting units during the World War. In the initial attack of the

Meuse-Argonne Offensive there was one gun per eight meters; later, when the attack took on the characteristics of a mobile situation, there was only one gun per one hundred meters. In a future war, lack of artillery or its inability to keep up may reduce infantry to only a modicum of artillery support. Such as we have must be effectively applied.

Even if the light artillery is on hand with plenty of ammunition, there are times when its use is hampered; if the opposing infantry are close together and changing positions frequently, the opposing artillery are fearful of hitting their own infantry; if darkness, fog or smoke prevent observation, the artillery cannot always put down supporting fires; combat carried on in heavily wooded areas of large extent cannot receive much aid from the artillery. If the artillery is some distance back, lack of communication or inaccuracy of long-range fire may prevent its use. In the opening battles along the frontier in August of 1914, French artillerymen were sometimes unable to tell friend from foe at distances of only a few hundred yards even when they were visible. Some of these limitations on the use of light artillery lead us to appreciation of the special characteristics of the armored fighting vehicle; it can help forward our own infantry against opposing infantry without injuring our own infantry. This fact is further evidence of the necessity of having with the infantry battalion a weapon that can successfully oppose enemy armored fighting vehicles.

A statement referring to the World War made by the executive officer for the Chief of Field Artillery (1930) reads as follows: "It may be stated that in supporting infantry, although our light artillery used ground observation whenever visibility permitted, the normal procedure was to transfer fire, using map data, from known and visible points upon which the battery had adjusted." France is a country that has many landmarks and is well mapped; if terrains other than those of France are attacked or defended, these terrains may be either unmapped or unrecognizable, and this would render it difficult to secure prompt, exact fires by the methods used in the World War.

Fires put down by supporting artillery during the attack may be rolling barrages, or successive concentrations on enemy resistances. The rolling barrage requires many batteries, large supplies of am-

munition and sufficient time to prepare it. Once a rolling barrage is started, the advance of the infantry battalion is tied down to the effort of its supporting artillery. The rolling barrage is the characteristic form of supporting fire for an attack in a stabilized situation; in a suddenly changing mobile situation it is neither desirable nor practicable. Some rolling barrages attempted with insufficient means have been so light that infantry battalions have passed through them without recognizing them as barrages; it is doubtful if such barrages had much effect on the enemy. The rolling barrage moves forward in jumps of one hundred yards at a time; the intervals between these jumps varying from three to eight minutes; the assault companies can close on its rear edge up to distances of from one hundred fifty down to one hundred yards. Writing of the jump-off on July 18, 1918, the commanding officer, I/9th Infantry, states: "At 4:35 a.m. the barrage came down and we went over. Part of the barrage fell behind us at the start and we ran into it several times again during the action, particularly when we were forced to advance out of our sector beyond the line of Beaurepaire Ferme. It was difficult to hold the men back to the slow rate of advance at all times. Fortunately the ground was soft and we suffered few if any casualties from our own artillery in this action. The tanks were late and I did not see any in action during the morning. I have since been told that they assisted both the 23rd Infantry and the Marines."

In the defense, artillery fires take the form of concentrations and barrages. The barrage can be laid down two hundred yards in front of the infantry line. Attacking infantry can mould itself on the rolling barrage, but in defense the light artillery fires cannot be laid down quite so close to the dispositions of the infantry. Projectiles are less flexible than men.

In both attack and defence the amount of time available has a marked effect on the quality of the support that can be given by the light artillery. Due to atmospheric and other conditions, it is desirable to adjust the fires of artillery. The situation (desire to effect surprise, or lack of time) sometimes demands that no adjustment be made. In cases in which the light artillery is unable to adjust its fires, the initial line of a barrage will have to be about four hundred yards in front of the infantry to be supported; consider-

ations of safety will not permit the initial line to be laid down closer to our infantry.

In the advance of the infantry from its line of departure in the attack, the battalion commander will have to accept the supporting fires of the artillery as announced in the attack order of the commander of his regiment. If there has been plenty of time to prepare the attack, the infantry battalion commander will probably have been consulted as to what fires he wants. But as we shall see later on, command decentralizes during an attack—the higher commanders have to yield initiative to the lower commanders—and the fires needed by the infantry battalion during the later stages of its advance will have to be decided on and called for by the infantry battalion commander. As the artillery has to fire from a halt, there will be intermittence in its full effect.

It is of highest importance that the infantry battalion commander be able to make known his need of artillery fire, and two means are placed at his disposal: one provided by the infantry system of signal communications (Chapter One, Section VIII; Chapter Thirty-one, Sections II, IV); and one provided by the artillery through the artillery liaison officer. The infantry system includes radio and pyrotechnics as well as telephones and runners.

The commander of the artillery unit supporting the infantry regiment usually establishes his command post near the command post of the infantry regiment. The signal communications pushed forward by the infantry regiment commander to the command post of the infantry battalion should enable the infantry battalion commander to make known his need of artillery fires (Chapter Thirty-one, Section IV).

The artillery unit itself provides a means whereby the infantry battalion commander can get in communication with the supporting artillery unit without going through the infantry regiment commander. This is done by sending forward an artillery liaison officer for duty on the staff of the infantry battalion commander. This artillery liaison officer has the personnel necessary to assist the infantry battalion commander in securing needed fires, and the signal communications necessary to transmit his requests back to the artillery unit (Chapter One, Section VIII). The artillery liaison officer's telephone line back to his artillery unit is a separate

line; it is not plugged in on the infantry battalion switchboard.

In case of heavy enemy artillery fire, both lines may be destroyed time and again; during a rapid advance, it will be difficult for the units in rear to keep up communication constantly with those in front.

What is the job of this artillery liaison officer? Principally, to see that the artillery meets the needs of the infantry battalion with the least possible delay. Placed at or near the command post of the infantry battalion and with his observation post close to that of the battalion commander, the artillery liaison officer can get accurate information as to where artillery fires are needed; he is much better situated in this respect than is the artillery commander back among the batteries. The artillery liaison officer may be charged with actually conducting the fires of the batteries. During the World War, conducting of fire by artillery liaison officers was a rather unusual procedure.

The ideal liaison officer is one who understands good infantry tactics as well as he knows artillery technique; it is perhaps expecting too much of human nature to assume that the artillery commander will send up his very best officer on liaison duty. In accounts of operations the number of references to artillery liaison officers indicate their power for good or evil. An infantry battalion commander of the 29th Division writes of the Meuse-Argonne Offensive: "Liaison between the artillery and the battalion was not satisfactory until late in the operation, the personnel not being familiar with their duties. In some cases they thought all they had to do was to keep the battalion commander informed as to where the artillery was." The report of a board that considered the work of the American artillery in the World War contains interesting observations. A general officer states: "Much is to be learned in our army regarding liaison and liaison officers. Good or even fair results *were the exceptions*. Subordinate infantry commanders (colonels down) either ignore or ask too much of the artillery. The only solution I know of is to educate the infantry to a better appreciation of the powers and limitations of field artillery and for the field artillery to send as liaison officers, officers of sufficient rank, capacity and personality to properly represent the field artillery." A colonel of field artillery states: "It is often

possible for forward liaison officers to adjust the fire of a battery * * * on particular targets which retard the advance of the infantry and to attain excellent results. This emphasizes the fact that these officers must be above the average in ability and not men who are below average as is so often the case."

Targets of opportunity, particularly, can have fires brought down on them by artillery liaison officers. In a mobile situation there will be many such targets. During open warfare in a featureless or unmapped country, it would appear that the artillery liaison officer—or some other officer from the supporting artillery—will have to be up with the infantry battalion commander in order to adjust and fire for effect in aid of the infantry. Unless a capable artillery officer is present near the infantry battalion commander, the infantry-artillery team may not function smoothly.

The commanding officer, III/26th Infantry, describing the day of October 5, 1918, writes: "During all this time the artillery liaison officer who had accompanied the 3rd Battalion did excellent work. He controlled the fire of two guns. These guns were located in the valley of the Ruisseau de Mayache southeast of la Neuville le Comte Farm. He had direct telephone communication with these pieces. This officer was an exceptionally excellent artillery officer and instead of giving targets to his guns he gave them the fire orders from wherever he happened to be. He destroyed many machine guns and two pieces of artillery which were located during the advance thus far. His fire could not only be directed on all targets to the front but on targets located along the Bois de Moncy as well." The Bois de Moncy was in the zone of action of the adjacent division, and a thousand yards outside the limiting line.

In order to deliver fire, the artillery commander must know exactly what the target is, where it is, and must also know when the infantry battalion commander wants the fire to commence and when he wants it to cease. Normally, at least fifteen minutes must elapse between a request for fire and the execution of that fire; the actual elapsed time may be much greater.

If the rifle company units are to be able to make an assault immediately following the cessation of an artillery concentration, there must be a mutual understanding between the commanders of the assaulting units and the artillery commander. If all watches are

synchronized, the artillery can cease firing and the rifle units assault at the same second; if the rifle units can signal by pyrotechnics when they are ready to assault, the artillery can lift its concentration; if the leader commanding the assault units can cause them to assault just when he desires, he may be able to telephone the artillery to lift its concentration. It is most important that the rifle units assault the moment the artillery concentration ceases, for at that moment the defending enemy will come out from under cover and start using its automatic weapons (Chapter Seventeen).

It is essential that the infantry battalion commander study his officers and know their powers and limitations. If the battalion commander should know and be known by his company and attached unit commanders, should he not know also the commander of the supporting artillery, who, two to three thousand yards away and kept in communication with the battalion command post only by means that often fail, must try to place his shells so exactly in a concentration or a barrage that infantry can approach, confident that there will be but few shorts? These two commanders, infantry and artillery, should be personally acquainted; the artilleryman must come up, see where the infantry wants projectiles placed and see that they are placed when desired. Writing of the Meuse-Argonne Offensive, the commanding officer, I/26th Infantry, says: "Artillery support was always close and particularly successful. This may be attributed in large part to the fact that infantry and artillery officers were known to each other personally and had mutual confidence in each other's ability." This is what has been termed mental liaison of the two arms.

When the infantry battalion is employed on security missions, in mobile situations or during a pursuit, a light artillery unit may be attached to the infantry battalion. The light artillery commander will take orders from the infantry battalion commander and will establish his command post near the command post of the infantry battalion (Chapter Five; Chapter Twenty-one). The infantry battalion commander will give missions to the light artillery unit commander, assigning him wide limits within which to place his batteries; the characteristics of observation, trajectory and protection of the light artillery are important matters of artillery technique with which the infantry commander will be none too familiar.

NOTES:

1. Progressive motorization of light artillery will probably result in greater ease of ammunition supply as well as in a lesser degree of intermittence in full artillery support.

2. The need of closely knit infantry-artillery relations is indicated by reports from French, British and German sources that they will place a four- or six-gun battery with each infantry regiment. Ultimately these will probably be supplanted by antitank weapons of special design.

3. If both infantry and its supporting light artillery are experienced, are operating in favorable terrain and time is available for adjusting fire, the attacking infantry can approach rolling barrages and concentrations to about one hundred fifty or one hundred yards and, in the defense, the artillery can place the rear edges of its barrages about two hundred yards in front of the infantry. If conditions of experience, terrain and time are not favorable, these distances between artillery fire and infantry personnel will be greater; this means that in the attack enemy weapons close to our line of departure may be undisturbed by our supporting artillery fire.

4. It has been stated that combat carried on in heavily wooded areas of large extent cannot receive much aid from the artillery. Consequently, as far as the effect of artillery fire is concerned, "half of a (large) wood is better than a whole wood." This is true, but it must be remembered that small areas of woods known to be completely occupied by the infantry of one side can be most effectively bombarded by the artillery of the other side.

5. In addition to the support given by the light artillery, the infantry battalion may be aided by the fires of the medium field artillery; the fires of the medium artillery are used, sometimes, to thicken or to extend the fires of the light artillery. Generally speaking, however, the infantry battalion commander does not have direct relations with commanders of medium-artillery units. The range of fragments from bursts of 155-mm. projectiles will require that infantry keep about five hundred yards away from the points of burst.

II: THE INFANTRY AIRPLANE

The infantry contact mission involves the watching of enemy groups immediately resisting or threatening the infantry battalion. It includes pointing out enemy resistances or impending attacks by diving on them and firing tracer bullets, or by dropping messages at the battalion command post.

The infantry liaison mission involves keeping higher commanders informed of the location of assault units and for this purpose the airplane may call (using pyrotechnics or other prearranged signal) for display of marking panels by squad leaders (Chapter One, Section I). It includes dropping messages at the battalion command post.

It is believed that one airplane, the "infantry airplane," can carry out both the infantry contact and infantry liaison missions.

Unless the infantry airplane is marked, or signals, in some manner known to the personnel of the battalion, the battalion will not know who it is and may even fire on it. Unless assault platoons put out their marking panels where they can be seen (when called upon to do so) or unless the battalion commander puts out his identification panel near his command post (when called upon to do so or when he has a message for the airplane) the infantry airplane will know neither where the front line of the battalion is nor which battalion it is. If the assault platoons are fearful of exposing their positions to enemy observation they probably will not put out their panels even though called upon to do so.

In woods, fog, smoke, at dark, the aviators will see little or nothing. Personal acquaintance of the battalion commander and the pilots of this airplane may do much to facilitate the work of both. Positive information from aircraft is usually reliable; negative information may prove untrustworthy.

NOTES:

1. Our regulations state that inexperienced troops should be furnished a small card illustrating the markings which identify friendly aircraft.

2. The battalion commander can send a few conventional messages to the infantry airplane by pyrotechnics or prearranged panel signals, or he may be able to send written messages which the airplane can pick up from a cord loop.

3. Airplanes have occasionally dropped ammunition and food to battalions in need of these supplies. This was done in the case of Whittlesey's battalion, but, due to the dense vegetation of the Argonne Forest, the packages were dropped too far away from the troops and they could not be reached.

CHAPTER FOUR: SUPPLYING ELEMENTS

(A) The battalion combat train[1]: I–Ammunition section; II–Headquarters section; III–Medical section; IV–Kitchen section; V–Engineer vehicle. (B) The battalion section of the regimental field train[2]: Ration and baggage vehicles.

NOTES: (1). With the exception of the rolling kitchen and water vehicle all vehicles are of the escort type. All may be supplanted by motor vehicles. (2). In 1936 the battalion combat trains and the field train of certain infantry regiments are motorized; methods of handling them probably will be much the same as for animal-drawn trains. (3). In this chapter only the principal characteristics of movement and duty are given; the battalion commander is not concerned with the minute details. (4). For a view of the activities of these trains as viewed from the rear echelon, see Chapter Five.

A

The battalion combat train for essentially combat supplies

I: THE AMMUNITION SECTION

Certain personnel, motive power and vehicles (from the regimental service company) required for supply of ammunition are grouped and called the ammunition section of the battalion combat train:

Four 4-mule combat wagons, one to each of the three rifle companies and one to the machine-gun company; capacity two thousand five hundred pounds each, or the equivalent in motor vehicles.

Including the ammunition carried by the men, on the machine-

[1]The battalion combat train (less the kitchen section) habitually follows the tail of the battalion. The kitchen section marches where ordered by the regimental commander.

[2]The battalion section of the regimental field train marches where ordered by the regimental commander.

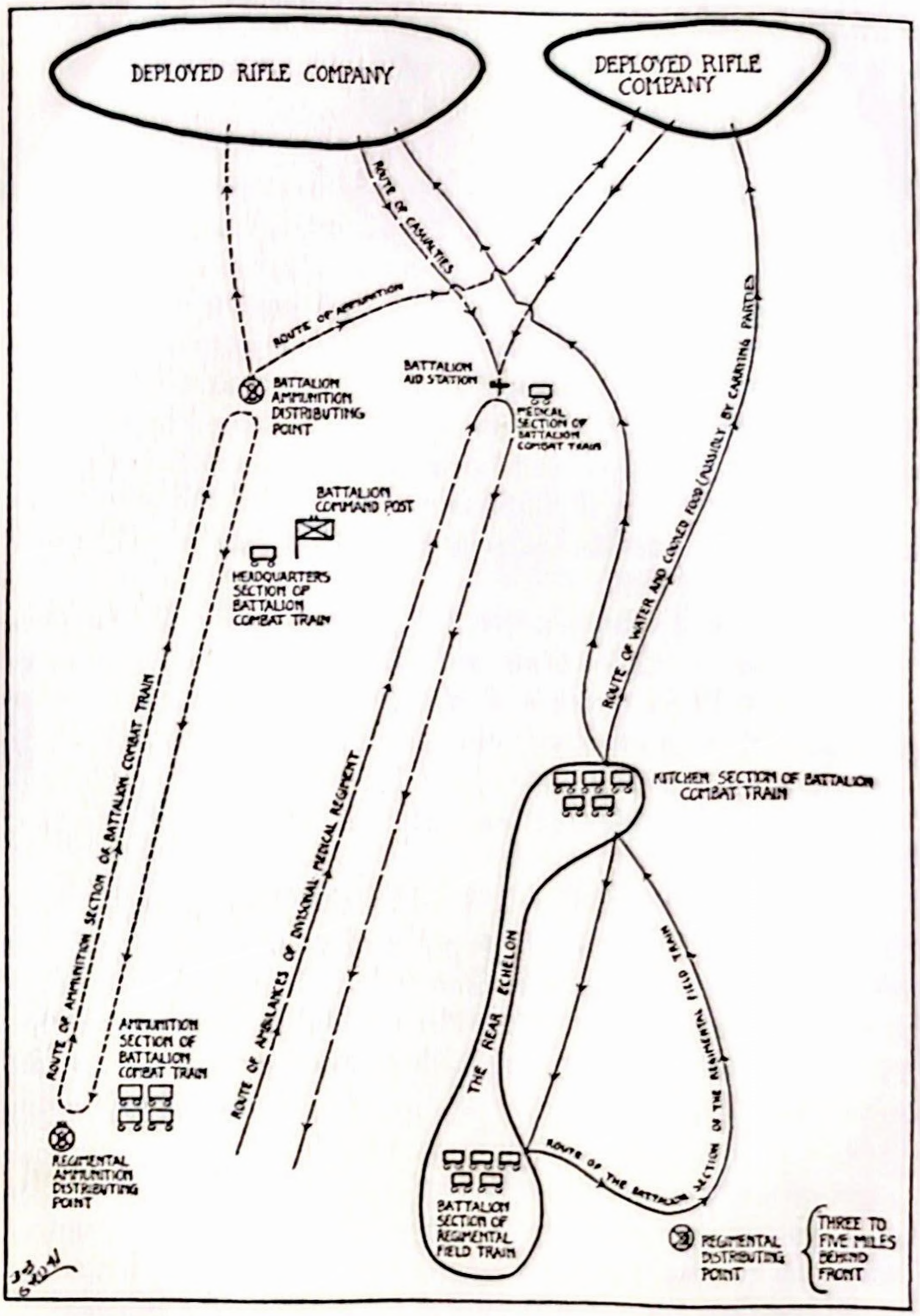


DIAGRAM NO. 1. *Movements involved in supplying battalion and evacuating casualties.*

gun vehicles and in the ammunition section of the battalion combat train, the battalion has enough to carry on combat until the regimental commander has reloaded the emptied vehicles of the

battalion combat train and returned them to the battalion supply officer (Chapter Thirty-one, Section II). This supply is one hundred rounds per rifle, four hundred eighty rounds per automatic rifle (Chapter One, Section I), some six thousand seven hundred fifty rounds per machine gun (Chapter One, Section VII), pistol ammunition, hand and rifle grenades (some smoke) and pyrotechnics.

Supply of ammunition to the infantry battalion is automatic. After the ammunition section of the battalion combat train has issued its load to the companies of the battalion, it moves to the regimental ammunition distributing point announced by the regimental commander. Without further effort on the part of the battalion commander, the ammunition section is filled and returned to the ammunition distributing point of the battalion or held ready to move to such point.

The regimental commander is responsible that needed supplies of ammunition are placed at the disposal of the battalion commanders. In his order for attack or defense, the regimental commander announces his regimental ammunition distributing point at which measures are taken to fill empty combat vehicles of the ammunition section of the battalion combat train (Chapter Thirty-one, Section II).

The battalion commander, assisted by the battalion supply officer, is responsible that needed supplies of ammunition are placed at the disposal of his company commanders. In his order for attack or defense, the battalion commander establishes his battalion ammunition distributing point at which ammunition is available for, or forwarded to, his companies and attached units. Details from a reserve company can sometimes be used to expedite supply.

The difficulties of ammunition supply are caused by heavy loads, few or poor roads, traffic jams, necessity of moving across country, damage to vehicles, casualties among men and animals, ignorance by the battalion ammunition section personnel of the locations of the regimental and battalion ammunition distributing points and by lack of energy in the personnel. The nature of its service requires that the battalion ammunition section operate away from direct supervision of the battalion commander.

Describing the day of October 6 in the Meuse-Argonne Of-

fensive, the commanding officer, III/26th Infantry, writes: "The machine-gun carts were finally utilized as on the previous night to bring up food for the tired, hungry troops. In addition to bringing up food, these carts worked nearly all night long in bringing forward machine-gun and rifle ammunition. It might be mentioned here that during the day these same mules had been used to bring forward machine-gun and rifle ammunition carried in improvised packs made of shelter halves. By making use of defiladed approaches and cover not one single animal was lost, although they came forward to within three hundred yards of the front line."

NOTES:

1. This section pertains to the automatic functions of the battalion commander (Chapter One, Section VIII). The supply officer of the battalion takes care of the details of moving this section; the company commanders make use of its contents (Chapter One, Sections IV, VII; Chapter Thirty-one, Section II).

2. When a howitzer platoon is attached to the battalion, its combat vehicle reports to and operates under the battalion supply officer (Chapter Two, Section I).

3. As the vehicles of the machine-gun company and of an attached platoon of the regimental howitzer company do not issue their ammunition at the same time as do the combat vehicles of the ammunition section, but carry them still farther forward on the vehicles, it may be seen that the ammunition supply of these units entails separate movements of transport.

II: THE HEADQUARTERS SECTION

Certain personnel, motive power and a vehicle (from the regimental service company) required to carry equipment for use in combat by the battalion headquarters and battalion headquarters company are grouped and called the headquarters section of the battalion combat train:

> One 4-mule wagon, for the battalion headquarters company; capacity two thousand five hundred pounds, or the equivalent in motor vehicles.

The equipment carried consists of combat equipment of the battalion headquarters and the battalion headquarters company, extra signal equipment and a small reserve of ammunition.

If movement is anticipated, this section remains within call of the battalion command post.

NOTE:

This section pertains to the automatic functions of the battalion commander. The battalion supply officer takes care of the details of moving this section; the commander of the headquarters company makes use of its contents (Chapter One, Section VIII).

III: THE MEDICAL SECTION

One 4-mule medical equipment wagon or a motor vehicle furnished by the medical detachment of the infantry regiment carries equipment for the battalion aid station. Pack mules may be used. If movement is anticipated, the medical section of the battalion combat train remains within call of the battalion aid station. The medical section of the battalion combat train is resupplied by the regimental surgeon or by the commander of the ambulance company that evacuates the battalion aid station.

NOTE:

This vehicle pertains to the automatic functions of the battalion commander (Chapter One, Section VIII). The battalion supply officer takes care of the details of moving this vehicle; the battalion surgeon makes use of its contents (Chapter One, Section IX; Chapter Thirty-one, Section II).

IV: THE KITCHEN SECTION

Certain personnel, motive power and vehicles (from the regimental service company) required for supply of water and food are grouped and called the kitchen section of the battalion combat train:

Five 4-mule rolling kitchens; capacity one ration each; five water vehicles (if needed), or the equivalent in motor vehicles.

Including the rations carried by the men, in the kitchen section of the battalion combat train and in the battalion section of the regimental field train, each battalion starts the day with a supply of rations (one reserve and two field rations for each man) sufficient to last for three days (Chapter One, Section I; Chapter Four, B; Chapter Thirty-one, Section II).

So important is the supply of water and food during battle that the officer second in command of each company of the infantry battalion is in command of its rear echelon during battle. The rear echelon of the battalion is near the bivouac of the battalion section of the regimental field train, and the kitchen section is within reach of the rear echelon; usually it is back out of effective range of hostile light artillery. Should an officer be lacking or, as frequently happens, have been called up to command his company, the responsibility for getting water and food forward devolves upon the senior noncommissioned officer present. The senior officer or noncommissioned officer present commands the kitchen section of the battalion combat train. The battalion supply officer supervises.

The regimental commander is responsible for procuring and turning over to the battalion sufficient water, rations, forage and fuel to supply the battalion. The battalion supply officer is responsible for getting these supplies to the kitchen section of the battalion combat train (Chapter Four, B).

The battalion commander is responsible that the kitchens are turned over to the companies at a point from which the companies can get the food to the men. Attached units will have no cooking arrangements and must be fed with some organic unit of the battalion. If conditions are such that the regimental commander has released the kitchen section of the battalion combat train to the battalion commander, the latter may be able to move the kitchens up to the companies.

If conditions are so difficult that the kitchen section of the battalion combat train cannot be moved closer than a point one or two miles in rear of the battalion, water and food will have to be taken up to the companies by carrying parties. Possibly details from a reserve battalion may be able to assist in this. Close coöperation of battalion and regimental commanders is necessary under this condition. When troops are fed by carrying parties, meals may be infrequent, scanty and poor.

Attempts are made to furnish infantry two hot meals a day, one after nightfall, the other early in the morning before dawn. If a noontime meal can be provided, so much the better.

The criterion of the quality of a meal is the condition in which it is received by the man in the front line; a stew that is hot and

good at the kitchens may be cold, mouldy, nauseating in appearance, odor and taste, when it is placed in the meat can of the man up front. The new reserve ration consisting of hard bread, tinned meat, tinned beans, sweet chocolate, soluble coffee and sugar packed in rain-, rodent- and gas-proof containers (two tins of one meal each to a package) is very much better than the failure of an ambitious attempt to provide hot food. This new reserve ration can be carried up in sacks and distributed to even the most advanced troops, provided this reserve ration is available in sufficient quantity.

The difficulties of supply of water and food are caused by the cumbersomeness of the kitchen vehicle, few or poor roads, traffic jams, necessity of moving across country, damage to vehicles, casualties among men and animals, lack or unsuitableness of cans for use by carrying parties, existence of gassed areas, ignorance by the battalion kitchen section personnel of the location of the companies, and by lack of energy in the personnel. The nature of its service requires that the kitchen section operate away from direct supervision of the battalion commander. The commander of a battalion in a hot place in the Meuse-Argonne writes: "Our food supply failed again on this night. The battalion commander was personally assured by the regimental commander by telephone that a hot supper was on the way forward. It did not arrive. The support battalion had the same experience, and after considerable heated telephone conversation the three battalion commanders and the officer detailed to see that food reached the forward troops were assembled in conference with the regimental commander. It was a dramatic and tense moment. The regimental commander said, in effect: 'There is an officer here who is a ..... He will at once get out of my P. C.' Needless to say that the officer concerned with rations left and did not stop going until he was safe within the continental limits of the United States."

One of the best aids in maintaining morale is providing the men with plenty of water and good meals at regular intervals.

The kitchen section of the battalion combat train may march and halt with the other sections (ammunition section, headquarters section, medical section) of the battalion combat train, but frequently it marches and halts with the battalion section of the regimental field train under the orders of the regimental commander.

NOTES:

1. This section pertains to the automatic functions of the battalion commander (Chapter One, Section VIII). The battalion supply officer takes care of the details of moving this section; the company commanders make use of its contents (Chapter One, Sections IV, VII, VIII; Chapter Thirty-one, Section II).

2. The reserve ration consists of tinned beef, tinned beans, hard bread, sweet chocolate, soluble coffee and sugar. It is packed in two gas-, rodent- and rain-proof tins containing one meal each. It is supposed to be opened only upon the order of an officer. If the men do not receive their proper amount of food from the kitchen section, they are quite likely to eat their reserve ration without waiting for the order of an officer.

The field ration carried in the battalion section of the regimental field train contains tinned meat and hard bread along with many other components. It is issued only when the normal field ration containing fresh meat and fresh bread cannot be provided, or when it is necessary to prevent deterioration of the tinned meat and hard bread.

V: THE ENGINEER VEHICLE

One 4-mule engineer tool wagon or motor vehicle, normally a part of the engineer regiment of the division, may be attached to the battalion combat train. This vehicle carries twenty-six axes, twenty-six saws, one hundred twenty-five pick-mattocks, two hundred fifty shovels (all large size) as well as sandbags, tracing tape, etc. An engineer detachment may be sent up with this vehicle (Chapter Two, Section V). It is contemplated that these tools will be issued to the infantry battalion in a defensive situation.

NOTES:

1. This section pertains to the automatic functions of the battalion commander (Chapter One, Section VIII). The battalion supply officer takes care of the details of moving this vehicle; the company commanders make use of its contents (Chapter One, Sections IV, VII; Chapter Thirty-one, Section II).

2. When an infantry battalion is digging in the approximate assignment of the tools will be:

To each combat company (on main line of resistance) forty

pick-mattocks, eighty shovels; to the reserve company, twenty pick-mattocks, forty shovels; to the machine-gun company, ten pick-mattocks, twenty shovels. This leaves fifteen pick-mattocks and thirty shovels for other troops.

B

The battalion section of the regimental field train for essentially noncombat supplies

THE RATION AND BAGGAGE VEHICLES

Certain personnel, motive power and vehicles (from the regimental service company) carrying equipment and supplies not required for essentially combat functions are grouped together and called the battalion section of the regimental field train:

Five 4-mule ration and baggage wagons; capacity two thousand five hundred pounds each, or the equivalent in motor vehicles.

The regimental commander is responsible for the loads carried in the battalion section of the regimental field train. In addition to rations, forage and fuel, this train carries company records and office equipment, officers' baggage and tentage, tools and cobblers' kits. Allowances: field officers, seventy-five pounds; company officers, fifty pounds; company headquarters, five hundred pounds.

The load of the battalion section of the regimental field train includes a rolling reserve of one day's field ration and forage which the regimental commander does not touch unless the division commander fails to provide him with rations in sufficient time to issue to the battalion. If the division fails to provide rations, the regimental commander uses the ration in the battalion section of the regimental field train to issue to the battalion; he then endeavors to replace this ration from the division (Chapter Thirty-one, Section II; Chapter Four, A, Section IV).

The battalion section of the regimental field train frequently is moved and halted under the orders of the regimental commander; on occasion it will be accompanied by the kitchen section of the battalion combat train. The bivouac of the battalion section of the regimental field train should be beyond the range of enemy light artillery.

NOTES:

1. This battalion section of the regimental field train pertains to the automatic functions of the battalion commander (Chapter One, Section VIII). The regimental commander usually moves and halts this train. The battalion supply officer takes care of the details of moving this train up to drop its load at the battalion; the company commanders make use of its contents (Chapter One, Sections IV, VII, VIII; Chapter Thirty-one, Section II).

2. The rear echelon of the battalion marches with the two sections of the battalion combat train and with the battalion section of the regimental field train, as shown in Chapter Five, Note 4. At halts it establishes itself as shown in Chapter Five, Note 4. All men of the rear echelon except the armorers are with the kitchen section of the battalion combat train or with the battalion section of the regimental train.

CHAPTER FIVE: THE INFANTRY BATTALION AND ATTACHED UNITS AS A WHOLE

I–The fighting unit; II–The rear echelon.

I: THE FIGHTING UNIT

The infantry battalion of three rifle companies, one machine-gun company and a headquarters company comprises all the means necessary for carrying on infantry combat and is the largest unit whose chief can personally lead maneuver; hence, the infantry battalion is the fundamental tactical unit of the infantry arm. "The infantry battalion, augmented by machine guns and other weapons, as it must be, is a fighting unit in a class by itself." (The Lewis Board). We have noted that in attack, battle is preëminently in the hands of the battalion commander; in the defense, the battalion holding a center of resistance is the basis of the defense. Furthermore, the battalion is the smallest infantry unit for which the light artillery executes fires.

As regards the intelligence functions: "The work of the battalion intelligence personnel forms the basis of all combat intelligence. To a large extent, the plans and orders of higher commanders are based upon the military intelligence resulting, primarily, from the activities of battalion scouts and observers."

With these responsibilities in operations and intelligence placed upon the infantry battalion we would expect to find, as we do, that its automatic functions have similarly marked characteristics. It is at the battalion that signal-communications equipment of a mechanical nature—lamps, wire and radio—begin to appear, with an officer to direct their use (Chapter One, Section VIII). At the battalion also we find the first supply officer charged with supply and the moving of trains, as well as the first medical officer responsible for care of casualties (Chapter One, Sections VIII, IX; Chapter Four).

The infantry battalion produces fire and movement. As regards fire there are hand grenades, rifle grenades, pistols, rifles, automatic

rifles and machine guns; some of these can be used only at a halt. There may be attached units of 37-mm. guns, 3-inch trench mortars, light artillery, tanks and chemical troops (Chapter Two, Sections I, II, III, VI). As regards movement, there are the different rates of lightly- or heavily-armed footmen, machine-gun units, attached 37-mm. guns, 3-inch trench mortars, light artillery, tanks. To sum up: the number of different units at disposal of the battalion commander may vary from five to ten; the variety of weapons, from seven to twelve; the rates of movement, from three to eight, and the number of officers and men may vary between what is prescribed in any published tables of organization down to what he happens to have in ranks at the beginning of a war or at the end of a day's battle.

Commanders of rifle and machine-gun companies have under them platoons all of which are alike in weapons and movement; the commander of a regiment has under him three battalions all of which are alike in weapons and movement. When we consider that the battalion commander has under him the different weapons and movements of rifle and machine-gun companies plus those of the non-battalion units usually attached, we see that the job of the battalion commander is distinctly more complex than those of his immediate senior and juniors (Chapter Thirty-one, Section I).

Combat implies the action of the infantry-artillery team, but there will be situations in which the powerful aid of the light artillery will not be available. For example, one difference between a stabilized situation and a mobile situation is the greater use of artillery in the former. A stabilized situation implies a high development of both the attack and the defense, with time for accumulation of artillery units and ammunition. Another difference between the two situations is the greater speed of movement in the mobile situation; this consideration alone shows the probability of lesser artillery support in the case of a mobile situation. In all situations there may be terrain, vegetation, darkness, fog, smoke, or gas that will render artillery support difficult; the terrain may be unmapped or unrecognizable; the lines of the opposing infantry may be so closely locked in battle or changing so frequently that artillery will dare place neither concentrations nor barrages lest its fire fall on its own infantry. These considerations show that under

some conditions, the infantry battalion will have to go it alone with little or no support from its powerful friend, the artillery (Chapter Three, Section I). This same condition will exist when the battalion is fighting in heavy woods; observation and reporting of areas upon which fires are desired are difficult and the presence of trees causes premature bursts, sometimes rendering our own artillery fire a danger to our own troops.

The commanding general, 77th Division, writes: "The artillery of the Division was as good as any, but in the dense underbrush there could be no effective observation of the fire; the lines were always in immediate contact and it was a matter of practical impossibility to determine from the map just where those lines were. So far as the front line was concerned the fight in the (Argonne) Forest was an infantry struggle, pure and simple, and our line was carried forward by the effective use of the infantry weapons."[1]

When an infantry battalion has a security mission, i.e., advance, flank or rear guard, or outpost, it may have a battery or perhaps more of light artillery attached to it. If a division is widely spread out in attack or defense, or if it is operating in regions that are characteristically foggy, the infantry battalion commander may find himself with an artillery battery attached to his battalion. This is enough to show that he must know what the artillery can do for him and what it cannot do; he must know its powers and limitations (Chapter Three, Section I).

At any given time a battalion has a certain combat capacity; it can be counted upon to do so much in attack or defense. This combat capacity depends upon a multitude of conditions; quality and number of officers and men, quality and quantity of armament, morale, being among the most important. This combat capacity varies during a campaign and throughout the various stages of battle. The combat capacity of a battalion is considered by the regimental commander in assigning it missions. It may be remarked here again that the sudden occurring of a major emergency or lack of replacements may send the battalion into battle with scantily trained personnel, only seventy to eighty men per rifle company and reduced numbers of other weapons. Under this con-

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[1] From Major General Robert Alexander's *Memories of the World War*. By permission of The Macmillan Company, publishers.

dition the combat capacity of the battalion would be less than that expected of the war-strength battalion prescribed in any particular table of organization. During the World War, infantry battalions in the A. E. F. received some untrained replacements late in 1918; in a sudden emergency there might be many such instances. Due to losses of personnel and weapons, the combat capacity of a battalion lessens during the course of battle. Telling of the capture of Fléville on October 4, 1918, by the 16th Infantry, the *History of the 1st Division* states: "Of the twenty officers and eight hundred men who had assaulted with the 3rd Battalion that morning, but two officers and two hundred and forty men remained."

II: THE REAR ECHELON; ITS BIVOUAC, AND THE ELEMENTS THAT WORK WITH IT AND MAY BIVOUAC NEAR IT. (SEE DIAGRAM No. 1).

While the infantry battalion is on the march or in battle there are certain elements of the companies that have to be back in rear and out of the way. These elements constitute the rear echelon of the battalion and consist of the following: seconds in command of companies, a first sergeant, mess sergeants, supply sergeants, a stable sergeant, a stable corporal, cooks and other specialists. The job of the rear echelon is to furnish water, food and other supplies needed by the forward elements of the battalion. The senior officer or noncommissioned officer with the rear echelon is in command. The battalion supply officer (S-4) has to keep in close touch with the activities of the rear echelon.

On the march the rear echelon (except the five armorers, who are with the ammunition section of the battalion combat train) accompanies the kitchen section of the battalion combat train and the battalion section of the regimental field train.

The kitchen section of the battalion combat train may march in rear of the battalion with the other sections (ammunition section, headquarters section, medical section) of the battalion combat train, but on occasion it marches with the battalion section of the regimental field train.

At the halt the rear echelon remains split among these sections. The bivouac of the battalion section of the regimental field train

(five ration and baggage wagons, or the equivalent in motor vehicles) should be beyond the range of enemy light artillery. The bivouac of the kitchen section of the battalion combat train (five rolling kitchens and, possibly, five water vehicles, or the equivalent in motor vehicles) usually is near the bivouac of the battalion section of the regimental field train. However, as the job of the kitchen section of the battalion combat train is to feed the men, it should be pushed up as close to the companies as is practicable. This applies to both halts during route marches and halts during battle. The battalion supply officer (S-4) supervises the activities of the kitchen section of the battalion combat train (Chapter Four, A, Section IV).

The ammunition section of the battalion combat train (four combat wagons, or the equivalent in motor vehicles) is a unit that supplies the battalion, but, as regards its supply function, it has little or nothing to do with the rear echelon of the battalion. During battle the ammunition section shuttles back and forth between the battalion ammunition distributing point and the regimental ammunition distributing point. The battalion supply officer (S-4) supervises the activities of the ammunition section of the battalion combat train (Chapter Four, A, Section I).

The headquarters section of the battalion combat train (one wagon, or motor vehicle) moves and halts wherever necessary in order to carry the combat equipment for the battalion headquarters and headquarters company, extra signal equipment and a small reserve of ammunition. As regards its supply function, it has nothing to do with the rear echelon of the battalion. The battalion supply officer (S-4) keeps an eye on the activities of the headquarters section of the battalion combat train (Chapter Four, A, Section II).

The medical section of the battalion combat train (one wagon, or motor vehicle) moves and halts wherever necessary in order to carry the equipment of the battalion aid station. As regards its supply function, it has nothing to do with the rear echelon of the battalion. The battalion supply officer (S-4) keeps an eye on the activities of the medical section of the battalion combat train (Chapter Four, A, Section III).

In a stabilized situation the battalion combat train (ammunition

section, headquarters section, medical section and kitchen section) and the company trains (machine-gun company and headquarters company vehicles) as well, may be at the bivouac of the battalion section of the regimental field train.

NOTES:

1. Tables of organization (war strength) give the strength of a battalion as: 1 lieutenant colonel, 1 major, 4 lieutenants, 3 rifle companies, 1 machine-gun company, 1 headquarters company, 544 rifles, 54 grenade dischargers, 54 automatic rifles, 12 machine guns, and 254 pistols. Total: 28 officers; 824 men.

2. This chapter discusses the infantry battalion under the combat conditions of 1918. During 1918, the battalion was not subjected to the attack of armored fighting vehicles for the Germans had only a few ineffective tanks. As regards enemy aircraft, their mission in attack against infantry was just beginning to develop.

As has been noted, the presence of enemy armored fighting vehicles in battle raises the question of projectile versus armor and brings that problem home to the infantry battalion, for the indirect fire against armored fighting vehicles of supporting artillery is not decisive.

Reports from British, French and German sources speak of the assigning to each infantry regiment of a four-gun or six-gun battery of light artillery. Ultimately these will be supplanted by antitank weapons of special design. This is recognition of the fact that the infantry battalion must have, promptly available, weapons necessary to crush enemy automatic weapon resistances as well as to enable the infantry battalion to beat off attacks of enemy armored fighting vehicles. If these batteries are motorized so that they can change position promptly without waiting for teams to come up from some distance, they can quickly move from one position to another in case their first firing position is blinded by smoke or otherwise unsuitable.

Enemy armored fighting vehicles moving at the rate of sixteen miles per hour can start from a point one thousand yards distant and be among our infantry within three minutes. If the battalion is to be subject to such attacks, it must have protection, and the weapons of sufficient power to stop enemy armored fighting vehicles must be under control of the battalion commander.

One of the few available weapons that can oppose enemy armored fighting vehicles is the present (1936) 75-mm. field piece; weapons of the infantry battalion and attached units will do their best against sensitive parts of such armored fighting vehicles. In 1936, experiments indicate that an armor-piercing caliber .30 weapon, effective against armored fighting vehicles, may be available in the future.

The infantry battalion of the immediate future has obvious reasons to expect enemy air missiles. The battalion must be able to drive off enemy aircraft. Rifle and machine-gun fire can be used against them.

The infantry weapons of caliber greater than .30 with the battalion, will be, then, some of the following: 37-mm. guns; 3-inch trench mortars. As it will be convenient to refer collectively to such of these as are present with the battalion, we shall, in the remainder of the text, call them the "infantry heavy weapons."

All changes in and additions to the infantry battalion are to the end that the battalion may have greater ability to apply power. Increase of automatic rifles in the rifle companies will give a much greater amount of quickly concentrated fire power. It is not anticipated that these changes will make any marked difference in the tactical handling of the battalion; it is possible that these increases of power will increase the fronts on which the battalion will be ordered to attack or defend. More ammunition will be required for battle and the battalion may take up more road space.

With increase in number and variety of units, the problem of the battalion commander becomes more complex. But, whether the battalion be large or small, whether the infantry heavy weapons be many or few, the principles of good infantry tactics do not change: all at the disposal of the battalion commander will be used by him in maintaining his freedom of action to apply power.

3. The new caliber .50 machine gun may operate in the battalion area against both enemy armored fighting vehicles and aircraft, possibly under the orders of the infantry battalion commander.

4. Tables of organization (war strength) indicate that the following personnel (or corresponding grades for motorized units)

will constitute the rear echelon of the battalion:

Officers second in command of companies	4
Mess sergeants and supply sergeants	9
Other noncommissioned officers (first sergeant, stable sergeant, stable corporal)	3
Cooks	19
Company clerks	5
Armorers	5
Saddler	1
Horseshoer	1
Artificers	3
Tailors	4
Barbers	5
	59

At a halt, the following trains and personnel may be at or near the bivouac of the battalion section of the regimental field train:

Battalion section of the regimental field train:

Ration and baggage wagons	5
Mules	20
Wagoners	10
Supply sergeants, company clerks, artificers, stable sergeant, stable corporal, saddler, horseshoer	16

(Or the equivalent in motor vehicles).

Kitchen section of the battalion combat train (this section will be as close up to the companies as is practicable):

Rolling kitchens	5
Mules	20
Wagoners	10
Water vehicles (possibly)	5
Mules (possibly)	10
Wagoners (possibly)	10
Seconds in command, mess sergeants, cooks, tailors, barbers, first sergeant of headquarters company.	38

(Or the equivalent in motor vehicles).

Ammunition section of the battalion combat train (usually does

not establish itself near bivouac of battalion section of regimental field train; may establish itself there in a stabilized situation):

Combat wagons	4
Mules	16
Wagoners	8
Armorers	5

(Or the equivalent in motor vehicles).

Headquarters section of the battalion combat train (usually does not establish itself near the bivouac of battalion section of regimental field train; may establish itself there in a stabilized situation):

Wagon	1
Mules	4
Wagoners	2

(Or the equivalent in motor vehicles).

Medical section of the battalion combat train (usually does not establish itself near bivouac of battalion section of regimental field train; may establish itself there in a stabilized situation):

Wagon	1
Mules	4
Wagoner	1

(Or the equivalent in motor vehicles).

The bivouacs of all trains should afford the necessary traffic facilities forward and back, shelter from observation and fire, water, and should not interfere with troop movements.

CHAPTER SIX: UNIT COMMANDERS AND STAFF OFFICERS

In his report on the Meuse-Argonne Offensive, General Pershing wrote: "Upon the young commanders of platoons, companies and battalions fell the heaviest burden. They not only suffered all the dangers and rigors of the fight, but carried the responsibility of caring for and directing their men, often newly arrived and not fully trained." The commanding officer, I/9th Infantry, states: "The casualties in officers caused by reckless exposure may be criticized but it will always be necessary with partly trained troops. Such troops actually need individual instruction and supervision on the battlefield and also have no respect for or confidence in the officer who issues his orders from some covered point. On the other hand, they possess what has been aptly called the valor of ignorance and will follow wherever an officer or noncommissioned officer will lead the way."

Thirty-five years ago, Gavet stated the nature of combat power: "In an army, the central organ can indeed transmit impulsions to the extremities: that is to say, it can transmit orders, but it cannot transmit force. All the forces of an army lie in the various groups at the different points of the military body. It is at these points that we find life, discipline and the elements of action. None of this comes from the central organ and we would waste time in waiting for anything of the sort. What comes from the center are directions, orders and expressions of command which may, indeed, bring the forces of the army into play, but which awaken these forces only in the groups, at the points where these forces permanently exist—they never bring these forces to the group.

"When the actions of an army result entirely from impulsions coming from the center, it is not a living organism; it can function like a machine, with blind regularity, as long as it is on the normal peace-time footing. But it is not ready for war service unless it is at all times animated by, and its mass thoroughly imbued with, its own energies, which are: initiative, intellectual and moral activity, individual and collective self-respect, professional pride

and, above all, consciousness of a common duty. These are the forces, the energies, which we must be careful not to confuse with channels of communication, with dispositions and arrangements, or with the expressions and forms of combat."

The battalion commander himself has the power of but one man; in his company and attached units he has the power of many men and many weapons which he can apply tactically; and we have concluded that we apply tactics best when we maintain our freedom of action to apply power. Someone has stated of battle that ten per cent of it is orders, the remaining ninety per cent is execution. Yet this issuing of orders is not a simple thing. It has been said: "The military profession imposes upon its leaders the greatest responsibility that may fall to any man—the responsibility of doing a job, the tools being the lives of comrades. There are some * * * who have had the responsibility of leading men into action, and they will understand, but there is no one who has not done it who can visualize what it means. And I say to you, that it is the first duty of each and every one to prepare himself against the time that he may be required to assume this responsibility."

A weak body cannot carry a strong mind very far in battle. General Cordonnier of the French army has incisively described the requirements for the infantry officer. He writes: "Physical vigor is an essential quality of the company officer and is of greater importance than intellectual strength. As one rises in the military hierarchy, mental qualities take on an increasing importance, but, up to and including the battalion commander, it is indispensable to have a well-trained body that can support fatigue. The regimental commander must have physical strength and unbreakable will power. * * * There is a demarkation to be made between the thinker and the doer, between the mind and the muscles. * * * The regimental commander is certainly a doer; he should be the elder brother of his men rather than their father. Above the grade of colonel, intelligence allied with character predominates to such an extent that an old man like Moltke can command an army."

In battle, neither battalion commander nor anyone in his battalion is immune from the effects of strain. In peace-time or on war duty away from the front an officer can ask for an opportunity to rest and he will not be subject to criticism for this manifestation

of foresight, but anyone serving with a battalion will try to hold on, sometimes long after knowing he has passed his limit. For the leaders of the units comprising the battalion we have the simply-expressed statement of an experienced infantry battalion commander: "I believe that the most difficult battlefield problem of a leader is to keep from going crazy." It gives all of us confidence to realize that the leader opposing us is struggling with the same problem.

A notable American division and corps commander states: "No man can go to battle as we did on the other side without a good body; if your body is not in good condition, your mind will not work—and you must keep that body in trim, for should you go in action, after you go for three, four or five nights practically without sleep, and you have not kept your body in shape, your mind is not working, you are going to fail, for no matter how much will and determination you have, your mind will not function after the third night and if your mind does not function, you cannot use judgment, so that you can readily see that physical energy and endurance is a prime requisite. If you look over the list of successful commanders of our forces in Europe, you will invariably find that they are men who have paid particular attention to their physical body; who preserved their energy; who kept a tranquil mind to make the proper decisions with a cheerful face—with determination—and this was reflected in their organizations."

The commander of an infantry battalion in the Meuse-Argonne, twenty-seven years old, strong physically and nervously, tells that he had a highly-prized compass. Having to determine a line along which to advance, he set his compass on a tree stump, noted the direction and moved off, forgetting the compass. After advancing about one hundred yards he wished to verify the direction of march, so he walked back to his compass, took a sight and again advanced, once more forgetting his compass. After three days of fatigue the brain seems to turn into leather.

So much for the general relationships between mind and body. Let us consider the officers of a battalion in detail. A major emergency would find the infantry battalion of the Regular Army, National Guard and Organized Reserves commanded by officers thirty-five years of age or more. This age implies a certain amount

of familiarity with troops. The second in command of the battalion would be of about the same type. If World War experience is repeated, the ages of the battalion commanders would decrease rapidly: in 1917, the average age of the battalion commanders of the 1st Division was forty-two years; in August of 1918, the average age was twenty-seven years.

When we reach the battalion commander we pass a dividing line; the battalion commander is a leader who commands units of different weapons and he deals with commissioned men only. An excellent captain sometimes makes a mediocre battalion commander. The man in ranks respects his lieutenants and captains as their merits warrant, for, seeing these officers almost continuously, he judges them. Field and general officers he respects in accordance with their rank; he takes them on trust. Contact of leaders with their men becomes less close as we go from squad leader to regimental commander, but every man in the battalion will know his battalion commander by sight at least.

The battalion commander leads his organization in battle. He does this by orders issued to the commanders of his companies and attached units and, *when necessary*, by taking charge in person.

The following extract from Alden Brooks' *As I Saw It* stresses the importance of the battalion commander as stated in the quotation from the *History of the 1st Division* in the title page of this text. He says: "War is a brutal chaos, governed by no law. Effective organization and leadership can bring men and materials to the rim of its conflagration, but can do no more. Each turn of its confusion demands a separate, individual, on-the-spot solution if it is to be mastered. Strategy may be subject matter for staff colleges and military biographers, but a few well handled machine guns will defeat any strategy. Battles are not fought by swaying armies, masterfully led. They are fought by waiting, independent groups of men, spread over a wide space of fields."

It has been remarked that a leader has seven different directions in which he must look. He has to watch three or four units of his command, the troops on each of his two flanks, his service of supply and his next higher commander. It is stated that these seven directions of endeavor are all that one man can handle and they have been compared to the traditional seven letters with which

Napoleon could busy seven different clerks at one and the same time. These seven directions alone suggest the advisability of a staff to assist the battalion commander.

We all know that a division commander has a general staff group to assist him in handling the varied troop units comprised in a division. The battalion commander has to handle the organic and attached infantry units of his battalion and, in addition, must be something of an artilleryman, tank-man, chemical-troops-man, airman, and engineer. Expectation of enemy air missiles indicates that special antiaircraft weapons may be placed near the battalion; the battalion commander must know how to use these. In maintaining supply he is quartermaster and ordnance officer; in assuring evacuation he is surgeon and when he takes measures to keep down straggling and take charge of prisoners he is provost marshal. The results of lack of training and experience of a lieutenant who succeeds to the command of a battalion are illustrated in the following: "Meantime the commanding officer, Company C, 9th Machine-Gun Battalion had reported. I explained our mission to him but, due to my lack of knowledge of machine guns, I was unable to direct him where to place his guns other than to suggest that he use them on our flanks. Anyway, his mission was to use the guns as he saw fit but to keep in touch with me during the advance. * * * Just after that an artillery lieutenant reported with the information that he had been told to report to me with one 75-mm. gun to help break up a tank attack that was expected in the morning. Information having been received that enemy tanks had been seen in Cunel that evening, he asked for instructions as to the best location for his gun. Again I was forced to display my ignorance by telling him to put it where it would do most good in case the tank attack did occur."

The variety of duties placed upon the infantry battalion commander is only slightly lesser than that imposed upon the division commander. This explains, were explanation required, why both division and battalion commanders have staffs to assist them. The division staff handles larger units and wider movements in the relative quiet of a division command post; the battalion staff handles smaller units and more restricted movement in the confusion of the battlefield—so noisy with detonations that it is sometimes impossi-

ble to make speech understood. The division staff is composed of trained, possibly experienced, field officers who remain long enough to establish systems; the battalion staff is composed of hurriedly selected young officers of anywhere from a few weeks' to a few years' service who not infrequently become casualties. A further difference between the division and the battalion staff officer is that in some cases the latter actually commands the units with which he carries out his work.

The character of the action of a body of armed men depends, in part, upon how quickly this body of men can take action after information of the enemy has been received. If a rifleman sees an enemy, he opens fire upon him within a few seconds; information of the enemy is followed by almost immediate action. If a division commander receives information of what the enemy is doing at a particular part of his front line—say a surprise counterattack by armored fighting vehicles against two of his assault battalions—he frequently finds that this information has taken a half-hour to arrive. Any orders that he could send to the battalions being counterattacked would require some time to arrive and would probably be unsuitable when they are finally received. Even the artillery aid that he may be able to render will require time for putting into effect. Speaking of the defense of the 3rd Division on the Marne in July of 1918, the commanding general, 6th Brigade, says: "Thus it was, as later found out, that the battle was really over before any news of it got back to the brigade command post."

The task of a squad, though difficult, is usually obvious. In the smaller units a specific thing is done because the squad, section or platoon leader on the spot orders it done and personally aids in doing it. As we go into the higher units we find the necessity of more information and more preparation—hence more time—before an order can be issued. At the far end of the scale we find the division. It requires hours for planning and preparing a marked change in the battle action of a division. Need more be said to show that the action of the smaller units such as squads and platoons is specific and immediate, while the action of the division has to be much more general in nature and requires time before it can be put into effect?

Now, the characteristics of the infantry battalion in battle lie in

between those of the squad and those of the division. The frontage on which the battalion commander carries on battle is much wider than that of the squad or of the platoon, yet it is not so wide that the battalion commander cannot get information from and make his action felt at any point of it; at times he will be able to observe his front in its entirety. As a result of this, the battalion commander is able to take action within a very short time after information of the enemy has been received, one reason for the variety of weapons placed at his disposal and an explanation of the tendency toward providing the battalion with weapons capable of opposing enemy armored fighting vehicles. The action of the battalion in battle is much like the infighting of the prize ring; a blow by the enemy is replied to by an almost automatic return blow. The infantry battalion commander is a leader of combat rather than a director of operations.

An attack is made as the result of an order issued by a senior officer to a junior; the junior, in his turn, issues to his juniors such orders as are necessary. We know that the division commander does not move out to personal combat with the enemy; we know that the private of infantry does move toward personal combat with the enemy; we know that battles are fought by units and not by individuals. Somewhere between the division commander and the private of infantry we find officers who move and fight with their units; of these officers the first one we meet is the infantry battalion commander.

From this discussion of the character of battalion action we can see that while the battalion staff, in assisting the battalion commander, has to perform the same classes of work as does the division staff, it has to work in a much more speedy and direct manner.

We have discussed the character of action of the battalion in order to show the job of the battalion commander, who is charged with leading his battalion in battle. If we can realize the job of the battalion commander, we shall, at the same time, visualize how the battalion staff can assist him, for a staff officer assists his battalion commander best if he is able to put himself "in the skin" of the battalion commander. A staff officer exists solely as part and parcel of his commander.

The battalion is the smallest unit having a group designated as

its staff. Closely in touch with the battalion commander day and night, the staff constitute his official family; the company and attached unit commanders are more distant, more powerful relatives. The staff charges itself with the routine or automatic functions of the battalion, provides the battalion commander with part of the information and advice that enables him to make his decision, and assists him in the details of preparing and making known his subsequent orders to his company and attached unit commanders. Finally, the staff inspects to see that orders are executed.

In battle the battalion commander has a great many functions and he is given staff officers to aid him: an adjutant, a supply officer, an intelligence officer, a plans and training officer, a communications officer, a surgeon, a machine-gun officer, an artillery liaison officer, sometimes a tank officer and a gas officer, and a second in command of the battalion who is also executive officer.

Battle is difficult, and if any of these functions are worked out in advance and made automatic in nature the battalion commander's mind is relieved of the necessity of giving them much, if any, thought and he will be able to give practically all his attention to those of his functions which are not automatic in nature.

The functions of the battalion commander actually do fall into the three classes of automatic functions, intelligence functions and operations functions. These three functions have already been mentioned in Chapter Five, in discussing the infantry battalion and attached units as a whole, and also in Chapter One, Section VIII, in discussing the headquarters company.

Automatic functions. The following functions of the battalion commander are automatic in nature, though material difficulties may arise in exercising them. The staff officer who aids in each is noted:

Establishing command post; guarding command post, taking charge of prisoners, stopping and returning stragglers; controlling vehicles, animals and traffic at command post; determining effective strengths of battalion units; handling replacements that arrive during battle—adjutant (S-1); providing signal communications and operating message center—communications officer; supplying ammunition, water, food and moving trains—supply officer (S-4); dressing and evacuating wounded—surgeon.

The automatic functions of the battalion commander become more difficult of performance in battle, yet there is nothing in them that should require action on the part of the battalion commander at any time. This arrangement is made so that the battalion commander may be free to put all his physical and mental energy into leading his battalion in battle.

Military history gives many examples of the miscarrying of operations because commanders could not be found. Establishing command posts at prescribed points along announced routes gives places for the centering of information, orders, and the headquarters groups that deal with these matters. With properly functioning command posts, the battalion commander and the commanders of his companies and attached units can move about within the rather circumscribed limits of their units as disposed for attack or defense. In both attack and defense the deployment of the battalion will be within a rectangle the longer dimension of which will be about one thousand yards. The commanding officer, I/9th Infantry, comments on his own action at a certain moment during the attack of the 2d Division in the Aisne-Marne Offensive: "By this time I had lost or used all of my officers and runners, so I started back to the left flank alone. I came under machine-gun fire on the way and dived into a hollow just in time. I left my map and the large division order there and continued by short rushes. I reached the left of the line without mishap but realized that I had done an extremely foolish thing. As I was the assault commander a certain amount of confusion would have resulted if I had been killed or wounded without anyone's knowledge. I could very easily have picked up two or three men and given them instructions to notify Colonel A and Captain B, my second in command, if anything had happened to me on the way."

To a considerable extent, the necessities in material of these automatic functions can be foreseen. In view of the fact that the regimental commander provides the battalion with these supplies, the automatic functions of the battalion commander are limited, in thought and area, to preparing these supplies, knowing the terrain over which they must be pushed forward and getting them into the hands of the men who need them. Evacuation is limited in thought and area to the men who need it, and the routes to the battalion

aid station. The remaining automatic function, signal communications, is likewise limited to the area of the company, attached unit, adjacent unit and battalion command posts, except in so far as attempts to use the radio may be made. Command is no quicker than communications. While battle will seldom demand less in personnel and material than prescribed in present tables of organization, it may, on occasion, demand more. And frequently the personnel charged with these automatic functions will have to do their job with less.

The battalion commander is a field—that is to say, an essentially combat—officer; the organization of his work into automatic functions and functions that are not automatic should leave him free to devote all his thought and energy to the latter. The functions that are not automatic are intelligence and operations.

Let us take up the intelligence and operations functions—the battalion commander's real job in battle. This job will consist of doing things that he has played at doing in peace-time maneuvers, but, due to existence of enemy fire and movement, he actually will be doing them for the first time unless he has been in action before. Battle, being full of unexpected things and usually confused, is far from being automatic in its nature.

Intelligence functions. The intelligence functions of the battalion commander are anything but automatic in nature, for their exercise depends on what the battalion commander is ordered to do as well as upon what the enemy does, and in war the opposing sides both make use of surprise. The staff officer who assists the battalion commander in:

Operating observation posts; ordering necessary reconnaissances with intelligence platoon men attached; searching and questioning prisoners; determining the enemy's situation and intentions and informing all concerned thereon; issuing maps—is the intelligence officer (S-2).

The importance of the intelligence functions of the battalion commander is shown in the statement: "The work of the battalion intelligence personnel forms the basis of all combat intelligence. To a great extent the plans and orders of higher commanders are built upon the military intelligence resulting, primarily, from the activities of battalion scouts and observers." Like all other com-

manders, the battalion commander must keep his company and attached unit commanders, the regimental commander and adjacent unit commanders regularly informed of events as he knows them.

Unlike the automatic functions of the battalion, the action of the enemy cannot be foreseen; it varies largely at the will of the enemy—there is nothing of routine in the enemy's action. Thoughts concerning supply and evacuation are of a forward-and-back nature and relate to terrain that is in our possession. But thoughts concerning intelligence relate to terrain in enemy possession, and this terrain may be front, flanks, rear—and we sometimes find the enemy over our head. The battalion commander also receives intelligence reports from adjacent commanders, the regimental commander and from the infantry airplane. Consideration of these various aspects of intelligence shows that it is a job in itself. If the battalion commander has no information of the enemy and the terrain he will operate very much in the dark.

Operations functions. Like the intelligence functions of the battalion commander, the exercise of his operations functions depends on what the battalion commander is ordered to do and on what the enemy does, the latter of which cannot be foreseen. The staff officer who aids in:

Working out tactical details; securing information concerning location, strength and morale of organic, attached and adjacent units; conferring with the commanders of these units and with other battalion staff officers; estimating the situation; preparing and distributing field orders with accompanying maps; moving troops; insuring security; making reconnaissances; connecting with adjacent units; observing movement and combat; keeping journal; keeping unit situation map—is the plans and training officer (S-3), aided by the machine-gun officer, howitzer platoon officer, artillery liaison officer, tank officer, gas officer, communications officer.

The operations functions of the battalion commander are entirely devoid of routine characteristics; they are the fullest expression of his worth as a leader. Operations require that the battalion commander watch all around the compass as regards his battalion; not only may adjacent battalions aid him but his supporting troops and reinforcements are at his rear. The commander of the machine-

gun company acts as a staff officer on questions concerning the use of machine guns. The importance of the aid rendered by the light artillery requires that the battalion commander have an artillery liaison officer attached to his staff.

The great amount of thought and energy required of the battalion commander in his intelligence and operations functions shows the necessity of having automatic performance of his command post, signal communications, supply and evacuation work. Furthermore, it shows the necessity of a staff which can lift the burden of detail from the battalion commander in all of these functions.

It would be a fortunate battalion commander who has perfect aid rendered by his staff. The best staff is one that works smoothly without pressure from the battalion commander; if, further than that, it can anticipate the necessities of the future, it is perfect. If a staff does not perform smoothly, it should require only a little advice; if that does not suffice, it requires some new staff officers. The staff should be a happy family; any dissidents should be replaced. Finally, it is a very good staff only that is popular with the companies and attached units; they will know when the staff is giving them good service.

Military history brings out some examples of the failure of battalion commanders to keep their staffs informed of events; on September 9, 1918, "A battalion of infantry of divisional reserve was then ordered forward between Bois Emont and Bois Cierges. The battalion commander was instantly killed and his message not having been communicated to the other officers of the battalion, this attack halted and the men took cover in shell holes."

In time of war the commander of an infantry battalion is given the rank of lieutenant colonel and a second in command of the rank of major is assigned to each battalion. This second in command acts as executive officer of the battalion and frees the battalion commander of the burden of detail. With a second in command thoroughly familiar with his tactical intentions, the battalion commander should be able to leave his battalion command post from time to time and even may be able to get a little sleep.

Following up details of execution would but poorly describe the activities of a battalion commander after he has issued an order during battle. There are details to be followed up, but the battalion

commander is there to lead combat, not merely to see that his latest order has been carried out. The situation changes with startling rapidity and the battalion commander must think in terms of the present *and the immediate future*—his main job.

Throughout the remainder of the text there will be many references to the automatic, intelligence and operations functions of the battalion commander; there will be few if any references to the individual officers of the battalion staff. Whenever any one of the three functions of the battalion commander is mentioned, it is understood that the staff officer who aids in that function is carrying on his normal activity of assisting the battalion commander. Furthermore, the battalion commander himself is responsible that the three functions are carried out; if he goes into battle with untrained staff officers, or loses them through casualties, he will have to do all the work himself. "The responsibility for the things done as well as for the things left undone within a command rests solely upon the shoulders of its commander."

At the beginning of the World War, France had a large number of reserve officers while we had practically none. In 1918, most of the French battalions were led by men of, or approaching, middle age, whereas our battalions were frequently commanded by very young men. The French reserve officers and troops were trained and there was no need of a great amount of personal attention concerning the details of battalions—a constant personal attention to details that necessity forced upon our battalion commanders.

Speaking of the infantry battalion commander, General Summerall writes the author: "The battle is in his hands. Unless all of his instrumentalities are carefully coördinated he would be so overloaded as to be unable to function. It is most important, therefore, to enjoin specifically upon the auxiliary commanders with him not to wait for his orders but to observe the action and suggest to him their procedure. He must be cognizant of their action in order to coördinate them and prevent possible injury to his own elements. The machine-gun company commander, the 37-mm. and the infantry mortar commanders, the communications officer, the artillery liaison officer, the chemical troops officer and the tank officer, all of whom may be under his orders, should maintain close contact with him, and should take the initiative in accomplishing what they know to be his general purpose."

With good orders based upon proper intelligence, clearly expressed and promptly transmitted, battle is commenced by the commanders of the companies and attached units. That is the real job. With a little practice, anyone can come to a reasonable decision and express it clearly; the enemy does not necessarily stop our mental processes. But the men who have to execute the decision, the men comprising the units that embody armed power, are the ones who have to meet and defeat the enemy. The burden placed upon the company officers is weighty, for Lieutenant General Liggett has remarked that after troops have gone into action, results depend mostly upon the courage, initiative and spirit of self-sacrifice of the company officers.

The company officers usually are men in their twenties. An occasional older officer will be found who has had long service in the ranks of the Regular Army. The commanders of the units comprising the battalion come from all strata of our population, but they are of the leader type. The battalion camps, marches and fights as one body; the officers of a battalion are known to one another, which is not true of the officers of a regiment. These officers have varying amounts of theoretical training, but the chances are that nearly all of them are new to battle. Due to casualties of various sorts, the platoon and smaller unit leaders change frequently; the company commanders not so often. In a personal experience monograph at The Infantry School, a former platoon commander of the 4th Infantry states: "On the morning of July 25 the company took le Charmel in the face of intense artillery and machine-gun fire. This company had been in the front area (either front line, support or reserve) since June 10, had had very little actual front-line service, and when the actual attack of the enemy position was made only about fifty per cent of the enlisted men remained and only one officer, whereas there had been eight officers in June."

Regular Army peace-time experience with its careful orders and prompt following up breeds a high degree of exactness in reports among officers and enlisted men. The more slap-dash practices of civil life, especially among young men, sometimes render it necessary for the battalion commander to check up on his newer officers. "In the first few months of the war the vast majority of the officers and men are going to be more or less untrained."

The battalion commander is a leader who, through practical experience or theoretical study, knows the powers and limitations of his companies and attached units. Not only his orders but also his actions must reflect this. When things are not going well, or go wrong, he must be on the spot to advise, encourage or even take charge in emergency. Anyone can formulate an order, but it takes a leader to see that it is carried out. This does not mean that he must run the professional and personal risk of attempting to command squads, sections and platoons as did some French senior field officers in the Belgian Ardennes on August 22, 1914. A battalion commander who attempts this will lose the opportunities created by his rifle companies, he will not be able to switch fires of machine-gun units and infantry heavy weapons, he will not be able to watch his own flanks, deliver counterattacks or aid adjacent battalions, he will not be in communication with supporting artillery—in fact he will not be able to command his battalion. One of the principal efforts of a battalion commander must be the maintaining of morale; frequent sight of him by the companies and attached units will help toward this end. The lieutenant colonel who had commanded the III/9th Infantry, rendered practically speechless and blind by gas, had himself led forward with his battalion in the Aisne-Marne Offensive, thereby giving an example of devotion to duty and maintaining continuity of leadership.

The infantry battalion is like a tool placed in the chuck of a machine—the machine being the regiment. This tool is used until it is nicked, blunted, sometimes broken. Then, replaced by another tool, it is sent back to be put into good condition.

The infantry battalion is best used when it is used so as to maintain its commander's freedom of action to apply power. This gives the battalion commander and his staff much to do. Are not these things accomplished most effectively under the formula: *organize, deputize, supervise?*

NOTES:

1. Tables of organization (war strength) provide the following staff officers for a war-strength battalion: 1 major (second in command, executive), 1 captain (surgeon), 5 first lieutenants: 1 adjutant (S-1), 1 communications officer, 1 supply officer (S-4), 1 intelligence officer (S-2), and 1 plans and training officer (S-3).

In battle the battalion staff and any attached staff officers assist as follows:

Automatic functions of battalion commander: Adjutant (S-1)—command post, guard; traffic, vehicles and animals of headquarters; records of effective strengths; stragglers; prisoners. Communications officer—signal communications and message center. Supply officer (S-4)—supply; keeps an eye on transport and evacuation. Surgeon—first-aid to casualties and their evacuation back to battalion aid station. (Chapter One, Sections VIII, IX).

Intelligence functions of battalion commander: Intelligence officer (S-2)—in charge of intelligence work; observation posts; important patrols; examining prisoners; disseminating information; issuing maps. (Chapter One, Section VIII).

Operations functions of the battalion commander. Plans and training officer (S-3)—studies tactical details; notes condition of units; keeps touch with commanders and staffs; estimates situation; issues and distributes orders; moves troops; secures; reconnoiters; connects; observes action; keeps journal. Machine-gun officer—advises on machine guns (senior machine-gun officer of battalion). Howitzer platoon officer—advises on howitzer platoon weapons (if howitzer platoon is attached to the battalion). Artillery liaison officer—advises on artillery (may be attached to staff). Tank officer—advises on tanks (if a tank unit is attached to the battalion). Chemical platoon officer—advises on use of chemical agents (if chemical platoon is attached to battalion). Gas officer—advises on protective measures against gas (an officer of the battalion—preferably a staff officer—specialized in chemical warfare). (Chapter One, Sections VII, VIII; Chapter Two, Sections I, III, VI; Chapter Three, Section I).

2. The sudden occurrence of a major emergency may cause the battalion commander to enter battle with reduced staff assistance. The incidents of battle may result in casualties among staff personnel and loss of material it uses. Either as the result of sudden occurrence of an emergency or due to casualties, many infantry battalions will be commanded by captains.

3. A staff officer would give orders in the name of his commander, first, if directed to do so by his commander, or, second, if he knows his commander would give such orders were he present.

PART 2
THE INFANTRY BATTALION IN THE ADVANCE TO BATTLE

CHAPTER SEVEN: MOVEMENT TOWARD THE ENEMY

I–General consideration of movement; II–Movement by motor transport; III–Movement on foot in general; IV–The approach march.

I: GENERAL CONSIDERATION OF MOVEMENT

Movement will be discussed with reference to a mobile situation; movement toward battle behind a stabilized front will involve the same difficulties with the exception that a battalion moving behind a stabilized front will have a greater measure of ground security.

Infantry, consisting as it does of men using mechanisms which are becoming more varied and more complex, must be brought to the battlefield in as good condition as is practicable. In the campaigns of 1804, Napoleon made use of horse-drawn wagons in quickly transporting regiments of the Guard from the Paris region to the Rhine. Development of motor transport and good roads have relieved infantry of much back-area marching during the move toward battle, but there comes a time when the roads will be used for the movement of other personnel and material.

At the beginning of the move toward battle, the battalion commander has little concern about tactical matters. As the battlefield is neared he is obliged to give consideration to protective measures and these increase in importance as the battalion commences the approach march, when tactical considerations become paramount. Modern developments in enemy artillery and in air missiles (machine-gun bullets, darts, bombs, gas and liquids from aircraft) will enable the enemy to impede our move toward battle at an earlier

stage than in the past. Developments in enemy armored fighting vehicles may result in surprise raids against our columns on the move toward battle.

The move toward battle starts with the battalion moving as a whole by motor transport on highways and ultimately becomes an advance in open formation on cart tracks and across country.

The battalion is the unit of movement whether on motor transport or on foot. The motor transport may move under the orders of the transport officer. From the moment the movement on foot commences the battalion commander is in full charge of the movement of his battalion.

The principal difficulty of any movement lies in the fact that the various units of the battalion are of different degrees of mobility. The rifle companies can get along under any conditions, but the machine-gun company, the headquarters company and the battalion combat train are equipped with animal-drawn transport or motor vehicles. If arrangements can be made in the future to transport animals as well as vehicles, this difficulty will tend to disappear, but if animal transport must go on foot it cannot keep up with a motor transport column and, on account of road conditions, it may lag behind even a foot column. With complete motorization of the infantry, difficulties due to animal-drawn units will disappear. Up to and including the approach march, one of the principal preoccupations of the battalion commander will be the non-foot units of his battalion that are separated from him by order of the regimental commander or lagging behind on account of bad roads or overloading. Even with the extensive net of excellent roads in France there was difficulty in keeping up the non-foot units. Campaigns in other regions that are unmapped, wooded, or poorly roaded would result in marked difficulty in this respect.

At the beginning of the move toward battle the men of the battalion are well fed, well rested and their morale should be high. As the approach march brings them nearer to the battlefield their morale may be lower due to fatigue and failure to receive water and good food. At the time we would want their morale at its peak we may find that it has been lowered by adverse, sometimes unavoidably bad, march conditions. Supply, as we have remarked, is automatic and the regimental commander is responsible for sup-

ply as well as for moving the battalion combat train when the latter is partly or wholly separated from the battalion, but the battalion commander will want to know what the regimental commander's plans are in order that he may do anything necessary to connect with his combat train at the end of the day's move.

Movement of troops toward battle is made as nearly secret as practicable but in many situations there will come a time when the battalion will have to move in daylight.

II: MOVEMENT BY MOTOR TRANSPORT

It may be remarked that truck-transported battalions of opposing troops could be one hundred fifty miles apart at 5:00 a.m., yet could be engaged at 1:00 p.m. the same day. Ability to move quickly is as much an element of surprise as is concealment. Motor transport was used in bringing up infantry battalions to fill the gap made in the Allied line by the German attack of March 21, 1918, and during the Meuse-Argonne Offensive motor transport was used to hurry infantry into the town of Buzancy after the retreating enemy. Its use in routine movement is of common occurrence.

If the infantry is not completely motorized, use of motor transport may involve temporary separation of personnel from its animals and part or all of the battalion combat train. As the personnel cannot live, move or fight very long without the animals and the battalion combat train, the battalion commander will want to know where and when he will see them again. In the meantime, the personnel has the ammunition and rations carried on the individual man, plus any that can be placed on the trucks. A completely motorized infantry unit has no complications due to animals or animal-drawn trains.

The order for a move by motor transport (a warning order may be received ahead of time) will give the what, why, where, when and how of the movement; ultimate destination and subsequent mission may be withheld in order to maintain secrecy. This order will state what personnel and material of the battalion are to move by motor transport and what personnel and material are to move otherwise under the orders of the regimental commander. A collecting station for sick to be left behind will be designated. Maps of the new terrain may be issued.

If advance parties are ordered to be sent on ahead they should move off promptly, make a thorough reconnaissance of the new area and meet the battalion at the detrucking point. Representatives from each company of the battalion, under an officer, should suffice. If there is possibility of meeting the enemy soon after detrucking, the orders from higher authority would probably arrange for a security detachment.

The following personnel and material of the infantry battalion can be carried on trucks: men; machine guns and carts; attached 37-mm. guns and their carts; attached 3-inch trench mortars and their carts; ammunition; communication equipment and its cart; medical equipment; water vehicles; cooking utensils; rations; rolling kitchens. If these are carried on trucks, there remain to move under the orders of the regimental commander: animals of machine-gun and headquarters companies; animals of attached howitzer platoon; animals and wagons of ammunition section; animals and wagons of headquarters section; animals and wagon of medical section; animals of water vehicles; animals and limbers of rolling kitchens; animals of all mounted personnel. If the infantry is motorized the battalion commander will not have to concern himself with these animals or the vehicles they draw.

The job of the battalion commander is to have his men and material ready to entruck at the designated place and hour. In entrucking, the men and material must be placed in trucks as quickly as practicable and the ordinary road traffic must not be interrupted. As roadside conditions determine the method of entrucking, we find that troops may be formed on the road abreast of the trucks; on the road in rear of the last truck; to the right of the road, abreast of the trucks; in any available space on either side of the road. A battalion experienced in moving by truck can be entrucked (including the loads of carts) in fifteen minutes. Thirty minutes will be required if carts, rolling kitchens, 75-mm. guns, caissons, limbers or animals are to be entrucked. Ten minutes should suffice for detrucking.

Blocks on the road sometimes necessitate completing the movement on foot, which brings complications if animal-drawn material has been placed on the trucks or is being trailed behind them.

An infantry battalion moving by motor transport may expect to

be subjected to air missiles. The time from first warning of this danger to departure of enemy aircraft may be no more than one or two minutes; the period during which fire can be executed against these aircraft may be no more than from ten to twenty seconds. Men with rolls cannot readily dismount and seek protection by dispersing, even at a halt; moreover, the truck column must keep moving. It is believed that trucks at two-hundred-yard distances do not offer a remunerative target to enemy aircraft.

During the World War there was some use of machine guns mounted on trucks. Machine guns with antiaircraft mounts placed in trucks throughout the column can fire and small-arms fire can always be executed. Protection against attacks from the air can be aided by organizing an observing and warning system. Enemy aircraft can be annoyed by small-arms fire up to five hundred yards. To attack, the enemy aircraft must come down to about fifty feet; the attackers will be in reasonable range for about fifteen seconds; infantry weapons can do much during this time if properly handled. As bottle necks are likely to attract enemy air activity, it may become necessary for a battalion commander to send rifle and machine-gun units to such places in advance with the mission of providing antiaircraft fires until the column has passed through.

If our infantry battalion moving in trucks is attacked by enemy armored fighting vehicles, it will require something more effective than its caliber .30 weapons and its infantry heavy weapons to beat them off (Chapter Two, Section II, Note 2).

On arriving at the bivouac the battalion will have to take the area assigned. Troops must be dispersed and concealed—possibly even camouflaged and dug in. Effective work by the advance party will enable the battalion commander to give his battalion as much rest and good food as practicable. Machine-gun sections placed for antiaircraft fire covering observed, logical lines of approach—valleys, roads, streams—of enemy aircraft, will aid in this. Any weapons for use against armored fighting vehicles will be placed covering their logical lines of approach. The battalion commander himself will get in touch with his regimental commander.

As the truck movement will be completed before the animal column arrives, there will be a period during which the battalion commander will have certain material without the animals and

vehicles necessary to move it effectively, i.e., if the infantry is not motorized. This material can be moved short distances by hand, but freedom of action of the battalion commander will be greatly hampered. Until the animal column arrives the battalion commander may be tied down as regards movement as well as regards further supplies of ammunition, water and food.

At some time during the move toward battle it will become necessary for the battalion to advance on foot. This will be demanded by the necessity of leaving available roads free for the use of vehicles or because enemy aircraft or artillery are too active.

NOTES:

1. While higher authority is charged with providing the proper amount of motor transport, the following data are given:

a. Ten men, with packs and individual equipment only, can be carried per truck ton, i.e., a 2-ton truck should carry twenty men.

b. A 1½- or 2-ton truck will carry: four carts, loaded (of any type); or four 37-mm. guns; or one rolling kitchen, dismantled; or the load of one escort wagon.

c. A 3-ton truck will carry: six carts, loaded (of any type); or six 37-mm. guns; or one rolling kitchen; or one 75-mm. gun and one limber; or one caisson and one limber; or six horses or mules (trucks to be specially fitted for this); or the loads of two escort wagons. If the infantry regiment is motorized, the battalion commander will not have to concern himself with these questions of loads.

3. Experiments conducted in 1929 showed that it is practicable to transport animals long distances by truck. It is possible that the future may see any animals that are left in the infantry battalion transported by truck.

4. In 1934, motor transport officers at The Infantry School announced that they believed that they could promise the following rates of motor transport: twenty miles an hour by day; twenty miles an hour at night, with light; ten miles an hour at night, without light. These rates include a halt of ten minutes every three hours. These rates are more than twice as great as were attained in France during 1918, and, probably, are based on the proviso that the roads are absolutely clear to the unit moving.

5. Impressing local civilian transport may enable a battalion commander to solve the problem of moving material and personnel.

III: MOVEMENT ON FOOT IN GENERAL

The order for a movement on foot (a warning order may be issued ahead of time) will give the what, why, where, when and how of the movement. Information concerning ultimate destination and subsequent mission may be withheld to maintain secrecy. As in movement by motor transport, advance parties may be ordered sent on ahead. The battalion commander should issue his own warning order as soon as practicable.

The battalion on foot moves as a whole under the battalion commander; he must commence his march at the designated place and time, halt at prescribed periods, find his way along the route and get his battalion into its bivouac. The intelligence officer should be of assistance in keeping the battalion on the right road. If any companies are detached before or during the march the battalion commander must see that they rejoin the battalion or are cared for wherever they are placed.

The battalion on foot is self-sustaining, for, in contrast with movement by motor transport, the battalion combat train and the battalion section of the regimental field train are within reach. If the infantry is motorized, the battalion should be self-sustaining at all times. In the early stages of movement on foot both trains may march at the tail of the battalion. When tactical considerations begin to take on importance in the later stages of the movement on foot, parts of the trains will be moved by the regimental commander. The battalion section of the regimental field train is the one first removed from the battalion, then, later, the kitchen section of the combat train. This leaves the ammunition section, headquarters section and medical section in the combat train; they never leave the battalion except as the ammunition section leaves temporarily in order to be refilled by the regimental commander.

The trains give trouble until they are properly handled. Vehicles are slow in reporting to the companies, companies are slow in loading. On the march unauthorized men will climb on the vehicles and every projection of the load will be festooned with equipment that should be carried by personnel. Advantage should

be taken of every opportunity to lighten the heavy loads of the men by transporting their rolls, but never at the cost of delaying the trains. Anything said regarding overloading the trains applies with equal force to the vehicles carrying the machine guns, the communications equipment and the infantry heavy weapons.

Movement of troops on foot usually implies long marches made on a road system that is inadequate, poor and congested. The battalion commander must get his battalion into the column at the right time without causing the men to stand with their packs on, waiting for some other unit to pass. The morale of the men is maintained if they see that the battalion is well handled. The better the battalion is handled on the march, the greater will be its combat capacity. Fatigued men cannot move fast; warfare demands swiftly moving infantry. The battalion commander must take measures to insure a uniform rate of march throughout the battalion; if the rear company has to run, at times, in order to keep up, something is wrong.

A practice march in time of peace is not an unpleasant thing if it is not too long. But what does the footman find on the move toward battle? He has to carry his shelter, blanket, part of his rations and not only his normal equipment but those additional items—grenades, automatic-rifle magazines, wire cutters, a larger first-aid packet, hand grenades, rifle grenades and, not infrequently, an additional canteen. Marching is no longer a movement along open roads in daylight; it becomes a struggle in stifling dust or sticky mud, frequently along a road filled with artillery or transport which forces the infantryman to move in single file along the side of the road, or across country. No longer does the marching column have the regular halt of ten minutes in the hour; frequent checks of the column due to unknown causes ahead bring pauses of indefinite duration. If the unit remains in ranks at one of these halts it may stand a half-hour; if it falls out alongside the road it may be assembled to march within a minute. In rainy weather the clothing is always wet, for use of a raincoat causes the wearer to stew inside a garment impermeable to air. In eastern France during cool September, the sweat induced by the infantryman's heavy load caused chills after only a five-minute halt; even the

men of a tired column would form on the road of their own volition, impatient to move so as to be warm again.

In time of peace a battalion is a handy, compact thing marching along in route column, but a night movement along a cluttered road or across country converts it into a long column of files that has to be most carefully watched lest a single man break the chain and lead those following him to some unimaginable place. Even a march on the roads in the back areas breaks the compact column into platoon elements at greatly increased distances if there is danger of enemy bombing. And, day or night, bombed, shelled or gassed areas may have to be avoided by making detours.

"Stonewall" Jackson has this to say: "The hardships of forced marches are often more painful than the danger of battle." By using light equipment, under special marching conditions and through the advantage of having sufficient roads for his troops, Jackson was able to execute remarkable movements. His men were seldom exhausted as were the Germans and French on the Marne. Road conditions of modern warfare are generally more difficult than those of the Shenandoah Valley during the Civil War, for, as a rule, modern warfare masses more men in a given area. Even with the hard-driven preparation of the German conscripts before 1914, what happened when they reached the Marne in August and September of that year? Marching at the terrific rate of over fifteen miles a day across Belgium and down through France, these men arrived near the Marne in a state of physical, mental and moral exhaustion. They had passed through a region flowing with wine and for relaxation or to recruit strength the men of some units drank heavily. There is proof of this in the report of one German officer who, inspecting to ascertain whether or not certain defensive lines had been organized, found that the troops had not touched pick or shovel. Inquiry showed that such of the men as were not drunk were so exhausted as to be unable to execute the orders of their officers. The citing of this German officer's report is not to be read as implying that all, or even the greater part, of the German armies were drunk at the time of the First Battle of the Marne.

Under the command of Craufurd the "Light Brigade" marched sixty-two miles in twenty-six hours in an effort to be present at Talavera (1809).

An incompetent battalion commander can cause much unnecessary exhaustion. A battalion of infantry, third in column, marching at night toward the Saint Mihiel position reached its proper halting place two hours before the leading battalion, lost on the road, succeeded in arriving at its destination.

The *History of the 1st Division* states: "The feet of many men were sore and inflamed from living in the mud and from ill-fitting shoes. The pain that they suffered could be seen in their set faces; but only those whose condition was pitiable would succumb. When the weary march ended, they found themselves in woods rendered boggy by old bivouacs or horse-lines and often tangled by the wire of the rear defenses."

Under the worst conditions a hot meal improves matters, if nothing has delayed the kitchen section. And things do happen to wheeled vehicles, for the 5th Division history, referring to field artillery units, states: "The muddy ground made the entrances and exits of the woods extremely difficult; sometimes as much as three hours were consumed merely in getting organizations out of the woods and on the roads." Napoleon named mud as the fifth element in warfare.

At the end of the march, the work of the officers is not always finished; some of them have to stumble around for hours in order to receive orders from the next higher commander. This is where a regimental staff can be of great help in reducing lost motion.

Rolling kitchens or kitchens on motor vehicles can start their fires while on the move. If they are with the battalion combat train they can furnish a hot meal much sooner than if they are moved by the regimental commander. Any delay in feeding troops after the end of the march cuts into the time available for rest. If the meal is served at 11:00 p.m. and the companies have to turn out at 3:00 a.m. the following morning, they will not be thoroughly rested. And in connection with feeding troops, how many times have officers (against their own inclinations in the matter) interfered with the serving of a meal in order to obey an order to "move at once"? It is true that war cannot always wait on meals, and it is also true that "move at once" has a definite meaning. But it is also true that twenty minutes' delay to serve a meal that is ready may mean the difference between high morale and morale

that is not so high. Commanders of regiments, brigades and divisions must remember this.

The infantry battalion will have to do much marching at night with many chances of wrong turns and lost units. The intelligence platoon can be used to direct the battalion at critical points such as road junctions. The connecting files sent forward from each unit to the unit in front should be commanded by an officer or noncommissioned officer.

Cross-country marches, in addition to the difficulties already mentioned, have the added one of providing no road either to march on or as a means of maintaining direction. The battalion commander will have to be constantly on the watch in two directions: toward the head, to assure himself that the proper direction is being taken; toward the tail, to assure himself that the remainder of his battalion is following. Much dependence will have to be placed on compass bearings, particularly if the country is featureless or unmapped. The intelligence officer should be able to help.

The same protective measures as those employed during the movement by motor transport become a little more necessary and include protection of the train at the tail of the battalion; this column of vehicles is the most vulnerable part of the battalion column. The carrying out of these measures during the movement on foot is less awkward, for the men can more readily disperse to the sides of the road and open fire, the machine guns are mounted on their own wheels, and control by officers is more effective.

NOTE:

A small guard at the tail of the battalion can pick up stragglers. If a medical officer marches with this guard, he can check up on the condition of men who straggle.

IV: THE APPROACH MARCH

In the later stages of the movement on foot it becomes necessary for the battalion to take up a formation more open than the marching column on the road. It will be necessary to do this either to be ready to take up a combat formation promptly or to move the battalion in the formation least vulnerable to possible attack by enemy aircraft, armored fighting vehicles, long-range artillery and machine-gun fires, and best prepared to beat off the first two. This

period of the move toward battle is called the approach march, the last few miles of which may be entirely across country, with the battalion heading toward an objective or toward an assembly area. During this period tactical considerations take on constantly increasing importance and the battalion commander must move his battalion so as to maintain his freedom of action to apply power. Due to modern developments in aircraft, the necessity of approach formations may arise so early during the move toward battle that much of the movement on foot will have to be made in such a formation. For this reason we shall take up, first, the defensive aspects of the approach formation.

During the period of two or three days before battle, orders of the higher command may push our troops insistently toward the enemy. During these two or three days the enemy may make more or less serious attempts to check the advance. This may cause the advance guard at the head of the column to move cautiously, with the result that the battalions in rear of the advance guard will move by fits and starts. This means that the battalion may have to pause from time to time, and that it will be late in reaching its bivouac, with consequent delay in the evening meal and reduction of time available for rest. The battalion commander must endeavor to avoid unnecessary fatigue. Detaching of companies on flank-guard or other special missions raises the problem of finding these companies, feeding them and picking them up when the march is resumed the next day. On August 21, 1914, due to failure of the corps cavalry to inform the division of the results of its reconnaissance (with resultant pauses of the advance guard to reconnoiter), the French 8th Division required from 5:30 a.m. to 8:30 p.m. to march fifteen miles.

During the approach march the men of the battalion begin to realize the fact of war; air missiles may already have caused casualties. A few casualties will increase morale; many casualties might decrease morale during this period of fatiguing march, little food and insufficient sleep. "Instant and effective obedience to the will of the commander is easily possible of attainment on the drill ground, with every one at ease, well-fed and complacent; it is attained amid the roar and strain of the battlefield only if corporals to generals are leaders."

In the account of his experiences as a company commander in August of 1914, Colonel Grasset writes that he had been ordered to ride ahead to arrange the billeting of his company in the village of Gomery and that while en route the country people warned him against going there because Germans had been seen recently in the village. Grasset continues: "This conversation made me think. I was surprised to find myself mentally fighting against an order that had been given me, probably *the first order of all my military life that involved real difficulty of execution.*" Many officers and men will be in the same frame of mind as was Colonel Grasset; no sort of peace-time service absolutely prepares one for a situation involving possible fire from the enemy. Caution must be observed; undue delay must be sharply corrected. If there was a degree of panic among the Allied troops retreating out of the Marne pocket in June, 1918, it does not seem to have affected the young, confident American troops moving through them toward battle.

Another peculiar condition, soon cured, is curiosity. Officers and men may rush to points of vantage to see what is going on a short distance away—a waste of energy, a disruption of dispositions and sometimes a target for the enemy's fire.

There is one preparation for battle that can be made during the approach march, and that is study of maps of the probable terrain of action. In 1914, the French 7th Division was provided with suitable maps of the German Rhine provinces but when it unexpectedly advanced into the Belgian Ardennes on August 22, the infantry battalions had only a few tourist maps on a scale of 1/200,000; most of the officers had no map at all.

During the approach march the battalion commander may be called upon for some special mission, consequently he will be reluctant to use his intelligence platoon on jobs that will separate it from his battalion.

As the enemy may be met during the later stages of the approach march, any parts of the trains not required for combat will be taken from the battalion by the regimental commander. This clears the road of cumbersome vehicles, leaving it free for the essentially combat elements. So the battalion section of the regimental field train will probably be moving under the order of the regimental commander. It is possible that the kitchen section of

the combat train is still marching with the battalion but more likely it also will be moving under the order of the regimental commander. Consequently the battalion commander has at the tail of his battalion only the ammunition section, headquarters section and medical section of his combat train. These, it may be repeated, make an effort to remain with the battalion at all times except when the vehicles of the ammunition section are temporarily absent for the purpose of refilling.

We have remarked that during the approach march the battalion must be ready to change promptly to a combat formation and also to march in such a manner as to render it least vulnerable to long-range artillery fire, air missiles and armored fighting vehicles. To defend itself against enemy aircraft, such machine guns as are available must be prepared to open fire instantly; in order to beat off armored fighting vehicles, the battalion will require something more than its infantry heavy weapons (Chapter Two, Section II, Note 2).

Spreading out the units of a battalion obviously lessens the target offered to the enemy and in the case of attack by air missiles such dispersion enables a number of units of the battalion to bring small-arms fire to bear against the enemy aircraft from different angles. Such a formation requires that some units leave the road, with resultant reduction of the rate of march and increase in difficulty of control.

In peace-time it is easy for a battalion to take up such a formation: we keep the leading company on the road with increase of distance between the units of the company; we also keep on the road the machine-gun company, some units of which, with anti-aircraft mounts, are sandwiched in among the rifle companies, including any on parallel roads; we have one rifle company off the road at the right flank, another at the left; the battalion combat train follows the tail of the machine-gun company—all this provided the terrain is favorable.

But in war how frequently shall we find that our battalion is using a road bordered by thick, pathless woods or by houses with inclosures; how many times shall we find bridges over unfordable streams forming bottle necks through which every man, animal and vehicle of the battalion must pass? How often will the battalion

have to move at night, which means that a company ordered to move off the road to a flank may be lost in a short time and will surely fall behind? We may be certain that the enemy will recognize critical sections of routes we shall have to use and that they will use air missiles and artillery fires against us at those critical sections. But our battalion will push through somehow.

So much for the methods of protection against enemy air missiles and artillery fire—the defensive aspects—during the approach march. Let us now examine into the battalion commander's thoughts regarding readiness of his battalion for action.

During the approach march the battalion in the infantry column is supposed to be protected to the front by the advance guard of the column. As regards the flank, protection is not so certain, and in any event, any battalion in the infantry column may be given a special mission to the front or flank which will require it to move over terrain in an approach formation, ready for instant change to a combat formation. During the march of the French 8th Division on August 21, 1914, the infantry battalion marching as the seventh out of twelve battalions in the column, was detached on a flank-guard mission, and made the attack (aided by two companies of the advance guard) at the end of the day's march.

We are safe in saying that a battalion which is ready to go instantly into a combat formation toward the front or toward either flank is marching in a suitable formation. Reducing this to other terms, if the four companies of the battalion occupy the corners of a diamond or square, with the point of the diamond or one edge of the square facing the direction of the suspected enemy, we are ready for anything on the march or at a halt. It is understood, of course, that each of the rifle companies throws out small security groups to front and flanks and that the machine-gun company, due to the range of its weapons, is at the rear point of the diamond or on the corner of the square farthest away from the suspected enemy. With such a formation, plus a squad or a section looking after the rear, the battalion commander will be in a fair way to maintain his freedom of action to apply power. It is clear that the spreading out of the battalion into a formation enabling it to go promptly into an attack formation, at the same time provides the spreading out necessary to help protect the battalion against enemy

air missiles and artillery fire. If the terrain off the road is at all practicable for movement, this spreading out will enable the various companies to pick their own routes within reasonable limits. Furthermore, no matter from what direction surprise may come, the battalion commander will always have an unengaged company of some sort. Marching across country in a formation such as this naturally requires that the battalion commander designate one company as the base company. This base company is charged with maintaining the direction of the movement toward an announced objective, along an announced compass direction, or both. The other companies maintain their distances and intervals from the base company.

It sometimes happens that the last stages of the approach march are made at night. On August 21, 1914, the German 9th and 10th Divisions marched at midnight from the vicinity of Etalle toward the villages of Virton and Ethe. The distance was about six miles and the roads used were bordered by woods all the way. By 6:00 a.m. the leading battalions were in contact with and had surprised the advance guards of the French 7th and 8th Divisions.

In peace-time a battalion commander can devote his entire attention to seeing that the units of his battalion march in the manner in which he has ordered them to march. If the proper movement of a battalion in the approach march during war requires attention on the part of the battalion commander, it is an insufficiently trained battalion, for in time of war the battalion commander must be able to devote his thought to the immediate future. The battalion commander may be given, at any time, a mission that will oblige him to take his battalion out of the column and across country where the enemy may be met from moment to moment. The presence of cavalry or armored fighting vehicle units, covering the march of large units such as the division and the corps, does not mean that they will discover the whereabouts of the enemy, nor, having discovered the enemy, that they will be able to push away the enemy or even warn us of them. The early months of the World War showed that cavalry was unable to push back enemy groups armed with machine guns.

In order that the battalion commander may be able to think in terms of the next forty minutes of time and the next two miles in

depth and width of terrain, the movement of the battalion in the approach march should be automatically carried out without necessity of further attention on the part of the battalion commander. Herein lies a great difference between peace and war, a difference appreciated fully only when the battalion commander finds himself at the head of his battalion on the move toward battle. The battalion staff must see that the movement is carried out following, as nearly as practicable, the order of the battalion commander. "As nearly as practicable" because bottle-neck passages may require that the entire battalion pass at one point. A good staff will take advantage of a bottle neck to rest such units as are waiting to pass through it. In some unfavorable conditions of road and adjacent terrain the approach march may reduce to movement of a solid or broken column on one road, with only such protection as can be given by the fires of the battalion.

During the later stages of the approach march every effort should be made to provide water, good hot food and as much rest as practicable. As the battalion gets nearer to the enemy the bivouac area will require increasingly effective means of defense against enemy aircraft and armored fighting vehicles.

Fatigue and illness may take their toll during the approach march; one battalion in position for the Saint Mihiel Offensive lost three officers by influenza in two days.

Research of World War experience shows that where morale was not good, the men appeared to be disgusted and exhausted by hardships rather than afraid of the enemy. In almost forty per cent of the reported instances the command was not properly rested before it entered battle. In about thirty per cent the men had been without hot food for a long time or had been improperly fed otherwise just before entering the fight. Hot food was supplied during halts only about thirty-five per cent of the time. Under the conditions noted in this paragraph we need not be surprised to find, as we generally do, that the soldier has eaten the reserve ration supposed to be carried into battle. A platoon commander of the I/142d Infantry, writing of the approach march into the Champagne on October 7, 1918, states: "Two questions were asked by each platoon leader. They wanted to know if there was going to be an attack, and if the kitchen force could provide hot food. Neither question could be answered definitely."

The approach march may end in an assembly area screened from enemy observation where preparations are made to go into battle. It is here that the battalion may receive its orders, get its extra ammunition, eat its last hot meal and drop its rolls. From the psychological viewpoint we may say that it is at this place that the soldier says goodbye to the world until he comes out of battle.

NOTE:

Despite careful forethought, it sometimes happens that infantry columns have to cross each other. If one battalion will assemble in a closely massed formation the other column can be halted to enable the massed battalion to quickly pass across the route of the halted battalion.

CHAPTER EIGHT: SPECIAL MISSIONS

I–General consideration of special missions; II–Advance guard; III–Support of advance guard; IV–Flank guard; V–Outpost; VI–Rear guard; VII–Attached to cavalry unit.

I: GENERAL CONSIDERATION OF SPECIAL MISSIONS

During the march toward battle a battalion in column is merely moving from one place to another, holding itself in readiness to take up a combat formation promptly, giving as little target to enemy activity as practicable and endeavoring to conserve its energy during the movement.

World War experience and our field manuals indicate that battalions will be detached from the main body for special missions. These special missions may be those in which a battalion is placed in motor transport and attached to a cavalry unit; where the battalion forms all or a part of the advance guard; is used as a flank guard, rear guard, or, at the end of the day's march, is employed in the outpost.

During the approach march of a column, distant and close reconnaissance by our air corps and cavalry insure a degree of security in its advance. But fast-moving motor transport can bring up enemy troops rapidly, and the existence of fog or cover for the enemy may nullify the reconnaissances of the air corps and cavalry, and hamper the close reconnaissance of the infantry. Again, the reports of the air corps and the cavalry, made to higher headquarters, may not get down to the commander of the marching column. In 1914, air corps reconnaissance had little development, but supposedly well trained cavalry was used; however, the French columns entering the wooded Belgian Ardennes on August 22, very generally, were surprised. So, despite the presence of air corps and cavalry, some infantry battalion commanders will find themselves given special missions during the approach march; the head and flanks of a marching column are still vulnerable, and developments in motor transport and armored fighting vehicles may make them more so.

We may expect greater assistance from the reconnaissance of the air corps than the French column commanders received in 1914, but if our air corps is driven off, is away on more important missions, or if visibility is poor, commanders of all grades will not be able to count upon its aid. Even though air corps and cavalry may furnish information concerning the enemy, they may be unable to furnish the detailed information concerning the terrain from the viewpoint of the infantryman, a thing in which the column commander is interested. Consequently, battalion commanders on security missions may wisely be silently skeptical as regards the furnishing of complete information by other arms, so long as this attitude of doubt does not unduly retard their rate of movement.

The psychology of an army or corps commander differs from that of the officers of a battalion. The army or corps commander has a mass of general information of the enemy's activity in an area wide in width and deep in depth; these large unit commanders also have a definite mission to carry out. In contradistinction, the company commanders and the battalion commander acquire fairly exact knowledge of the outer edge of the enemy by getting in contact with him; they realize the power of the enemy. In August of 1914 it was found that reports of French small units in touch with the enemy lacked frankness of expression, the company and battalion commanders were averse to saying anything that might savor of pessimism; frequently the higher commanders were surprised, later, by unfortunate events.

An infantry battalion commander given a special mission by the column commander is obliged to put himself "in the skin" of the column commander, for the special mission will be accomplished most successfully if it is carried out as the column commander would carry it out if he were on the spot. Whether he is advance guard, flank guard, outpost or rear guard, the battalion commander is removed from control of his regimental commander and becomes the column commander's man; security missions are means of action of the column commander. This means that a battalion commander on a security mission must keep the column commander informed of events. In order to do this he must know where he is to send his reports and arrange means for transmitting them.

Units of armored fighting vehicles, cavalry, artillery, engineers and medical regiment may be attached to a battalion to aid the battalion commander in carrying out his mission. Units of rapid movement will be particularly useful in aiding the uninterrupted movement of a battalion on a special mission. If observation cannot cover long distances, and it is rarely that it can, patrolling must be intensified, and rapidly-moving units are useful in patrolling. During 1918 some American advance-guard commanders received orders stating that artillery and cavalry units would report for duty as attached troops; in certain cases these units never arrived and the infantry had to get along without them.

The battalion commander will have a greater or lesser degree of independence depending upon which special mission is given him. Most of the special missions given battalion commanders during the approach march are those of security: advance guard, flank guard, outpost, rear guard. The formation of all these is much the same: first, a group or line of groups observing the enemy; second, a support or line of supports furnishing the observation groups and opposing the enemy; and third, a reserve. As the mission of the battalion commander may involve attack or defense (and even swift change from one to the other) we see that the described formation gives the depth of disposition necessary for these, while at the same time it enables the battalion commander to gather information of the enemy necessary to protect himself and enlighten the column commander. The mission of the battalion commander may be definite or it may have enough vagueness in it to cause him to ask himself just what he must do. He may be started out on an offensive mission and inside half an hour find himself on the defensive and vice versa.

When a battalion moves off on a special mission it leaves its place in column; its future movements are uncertain and, as a result, what we have called the automatic functions of the battalion commander do not work as smoothly as they should. The movement of the battalion may be across country and it will be difficult, sometimes impossible, for the machine-gun vehicles, infantry heavy weapons and combat train to follow. In case it is necessary for any of these to remain on the road it will be the duty of the regimental commander to take them over and return them to the bat-

talion commander at the first opportunity. This does not release the battalion commander from the job of keeping the separated parts of his battalion in touch; his staff officers should be able to assist in this. It is these difficulties of execution that sometimes upset the simple theory of the automatic functions. The energy of the battalion staff and combat train personnel must overcome these difficulties.

The mobile situation experiences at the beginning of the World War show that it is advisable to issue the extra ammunition when battalions are given special missions; this issue would be only the more obviously advisable if there is doubt that the combat train can follow. And we must remember that even under favorable road conditions it requires half an hour to issue the extra ammunition. Colonel Grasset tells us that on August 22, 1914, the II/104th Infantry formed the advance guard of the French 7th Division. A route march of fifteen miles, unopposed by the enemy, was expected by the higher command; the extra ammunition, which had been issued and taken back several times on preceding days, was not issued this morning. Three hours after the start of the march the battalion was surprised and after heavy losses driven back on the Belgian town of Ethe. One company of this battalion ran out of ammunition. This same battalion had not been furnished the maps that are essential in unknown country.

As regards his intelligence and operations functions, the battalion commander is now on his own; if on advance guard he has to follow the assigned route of advance, or, if on flank guard, select his own—no longer can he blindly follow the tail of the battalion in front of him. His close reconnaissance is not provided by the column commander; he must provide his own. If while his battalion was in column its formation was such as to minimize effects of air missiles and artillery fire as well as to be ready to take up a combat formation in any direction, his formation on a security mission must insure not only all that but also the ability to execute the special mission given him.

The intelligence functions of the battalion commander keep him informed of the enemy and the terrain to front and flanks. The intelligence officer assists in this. If mounted men or vehicles have been attached to the battalion they will be of great use. If foot

troops are used for reconnoitering patrols they should be relieved of their rolls while on this important and exhausting duty.

Whenever possible, battalions on security missions will march by successive bounds. In order to do this the commander must have specially mobile units that can advance well to the front and, by their reconnaissance, insure that the foot elements can cross a band of terrain without the necessity of deploying. The foot elements should make only such pauses as are necessary to gather together any units that may have lagged or strayed. Even with their approximate location known, it is sometimes difficult to find companies; runners sent to them may lose their way or become casualties.

If the battalion moves in fog or smoke it will be invisible to the column, cavalry and aircraft; supporting fires by the light artillery of the column will probably be impracticable. In featureless or unmapped areas, direction of march will have to be maintained by compass bearings.

At maneuvers in peace-time the battalion commander can devote his entire attention to seeing that his units execute his orders, but, as there is no enemy firing, maneuvers are very one-sided affairs. War brings opposition by an enemy. No longer can the battalion commander mildly follow up the movements of his units; once he has set them in motion he must be able to detach his thought from the units and direct it toward considering what he will do to carry out his mission should the enemy be met. He has to think not only of the future in terms of his mission, but also in terms of what the enemy may do on the unknown terrain into which the battalion is advancing. The staff must see that the units move as ordered, leaving the battalion commander free to move about, observe, and consider what he may have to do in the next mile of terrain and half-hour of time.

Use of a battalion on a special mission involves its leaving the main column. While on the special mission, or returning to the main column from such a mission, it may unexpectedly come in contact with friendly troops and be fired on; this is particularly likely to happen at night. The nervousness of both French and German troops in the Belgian Ardennes in 1914 resulted in battalions being fired on by their own troops because they were not

preceded and flanked by small security groups that could have discovered an enemy or recognized a friend. At a distance of only a few hundred yards it is sometimes difficult, even in daylight, to tell whether troops are friendly or enemy. And at night nerves are jumpy.

In this section we have stressed the reconnaissance work of battalions on special missions; the following sections, taking up each special mission, will go more fully into how they protect the column and what they do when they collide with the enemy.

During battle a battalion may be detached from its regiment to serve as brigade or division reserve. In these cases it might be engaged under orders received from the brigade or division commanders. A battalion commander having the job of brigade or division reserve, runs the risk of going into action at such a time and place as may hamper his automatic functions; the battalion commander and staff will have to watch carefully; they may expect many difficulties similar to those experienced when the battalion is acting as a security detachment.

II: ADVANCE GUARD

When the battalion comprises the infantry of the advance guard the battalion commander becomes the advance-guard commander. The advance-guard commander has much independence in this capacity, but his independence is quite likely to be taken away from him as the column commander is not far behind. The advance-guard commander is less independent than is the commander of a flank guard or of a rear guard. He should have less difficulty in making reports to the column commander, for the latter frequently marches with the advance guard. Sometimes the column commander finds himself too far to the front. On August 22, 1914, General de Trentinian, commanding the French 7th Division, marching with the advance guard, was surprised in the town of Ethe. He remained there four hours, during which time he was unable to exercise command of his rear brigade or of his artillery.

The job of the advance-guard commander is to reconnoiter the zone of advance of the column and, in case the enemy is met, to fight in such a manner as will allow the column commander freedom of action to apply his own power. This means that, starting

out on an offensive mission, the advance-guard commander may have to make a sudden switch to a defensive mission.

A battalion commander commanding an advance guard may have surprising experiences. In the advance of the 5th Brigade, French Colonial Corps, toward Neufchâteau on August 22, 1914, the advance guard, at 11:00 a.m. moved along the road on an offensive mission, brushing aside enemy cavalry elements. At 1:00 p.m. the same day, due to unwillingness of the advance-guard commander to believe in the possibility of serious enemy opposition on that day, the two battalions of the advance guard, having suffered heavy casualties, had been forced into a defensive battle. Before battle, regimental and higher commanders have what appear to be substantial bases upon which to build up a decision, but these bases sometimes disappear during the course of the fight.

In former days advance-guard commanders had to watch their fronts and, to some extent, their flanks. With the range of present-day automatic weapons and artillery and, particularly, with the developments in aircraft and armored fighting vehicles, the advance-guard commander will have to look well ahead and he may suffer from air missiles as well as from the attacks of enemy armored fighting vehicles against his flanks.

The advance-guard commander knows that the enemy is somewhere out in front. Are any of our own forces out there too and if so, what can they tell us about the enemy? Our air corps, armored fighting vehicles and cavalry units may be operating out in front under the orders of the column, or a higher, commander. These troops execute distant reconnaissance. Their reports should reach the advance-guard commander but he cannot depend upon receiving a maximum of correct information from such sources. Reconnaissance by the air corps has developed considerably since August of 1914 and the advance-guard commander may expect more from it now unless its efforts are balked by bad weather, low visibility or cover available to the enemy. The distant and even the close reconnaissances of the French cavalry in 1914 were generally failures. The column commander should arrange that the reports of air corps and cavalry units operating independently of the advance-guard commander be furnished to the latter; these arrangements will not always work.

An advance-guard commander will be fortunate if he has, attached to his battalion, units of rapid movement such as armored fighting vehicles, automobiles, or cavalry. These he should push out so far to front and flanks as to protect the head of the column against surprise by the fires of the enemy light artillery. These units might be reinforced by rifle and machine-gun units in motor transport. With such rapidly moving units under his own command he may be fairly certain that he will receive their reports, and, knowing the situation in his immediate front, be able to advance confidently without delaying the column. If his only speedy men are a few motorcyclists or mounted infantrymen the normal rate of march will be reduced.

These specially mobile units must realize fully that their real job is *reconnaissance;* they fight only in so far as is necessary to reconnoiter. If they are sufficiently strong to hold positions well in advance they can facilitate the uninterrupted movement of the advance guard.

If cavalry is attached to the advance guard it may be handled (depending on the amount) in, generally, three different ways:

First, if there is only a little, a platoon or less, the advance-guard commander can attach it to the support of his advance guard (the support commander is charged with the reconnaissance work of the advance guard), so that the support commander may break it up into small reconnoitering patrols for local reconnaissance;

Second, if there are two platoons or more, this detachment could be attached to the support, and, working under the senior cavalry officer, carry out missions given to him by the support commander;

Third, if there is a troop or more, the advance-guard commander could keep it under his own control and give it missions himself. He would have to insure that reports of reconnaissances are promptly made available to the support commander.

An advance guard no stronger than an infantry battalion would probably not have as much as a squadron of cavalry attached to it. Cavalry units as large as a squadron would probably be handled by the column commander, from whom the advance-guard commander will borrow as much as he can get. In the end, as the enemy infantry is approached, any cavalry attached to the advance

guard would have to clear the front and fall back to either flank of the advance guard.

Any swift armored fighting vehicles attached to the advance guard would be handled in much the same way. Small touring cars of the most common types and motorcycles carrying riflemen and automatic-rifle teams would be useful in reconnoitering if no armored fighting vehicles are available.

Any such units of armored fighting vehicles and cavalry attached to and working under the orders of the advance-guard commander are called "advance-guard armored fighting vehicles" and "advance-guard cavalry" to indicate their dependence on and responsibility to the advance-guard commander.

The powers of these more mobile units must be used by the advance-guard commander to maintain his freedom of action, for one phase of freedom of action is the uninterrupted movement of his advance guard. We can easily imagine densely wooded, pathless areas where reconnoitering would be very difficult. If conditions are favorable the advance-guard commander may receive information from the infantry airplane.

The advance-guard commander may have attached units of the regimental howitzer company, armored fighting vehicles, cavalry, light artillery, engineers, medical regiment. This means that in addition to his battalion staff and a representative from the division signal troops, he may have with him representatives from the cavalry, armored fighting vehicles, artillery and engineers. Not far in the rear may be the column commander with his staff, followed by reconnaissance details from the light-artillery units back in the column; these elements will probably march back of the reserve of the advance guard in order to be out of the way.

The reconnaissance job of the advance-guard commander is greatly aided by the more mobile elements referred to; as the advance guard also has a fighting job he will be particularly interested in the quantity and quality of the light artillery, probably a battery, attached to his battalion.

The units under the advance-guard commander comprise different degrees of mobility and fire power. He has rifle companies, a less mobile machine-gun company, infantry heavy weapons, light artillery. Out in front he has the more mobile armored fighting

vehicles, cyclists and cavalry. Theoretically, the advance-guard commander will think in terms of company and battery, for he will assign one rifle company to his support, keeping the remainder of the battalion in reserve. The advance-guard commander may have to think in terms of a section or platoon of machine guns attached to his support, or of squads or sections which he himself sends out to a flank from his reserve.

The advance guard will probably be detailed from a battalion not on outpost duty; its men must be rested, it must start at the announced time and its forming must be protected. On August 22, 1914, the French 8th Division marched north from Virton on Etalle. (See Diagram No. 3). The I/130th Infantry (de-Busserolle) formed the support of the advance guard. Due to heavy fog this battalion was surprised by two battalions of the German 7th Grenadiers. All of the fifteen officers with the battalion were killed, wounded, or disappeared in a few minutes of combat; only about fifty men out of a thousand were later picked up a mile and a half to the southwest. De Busserolle's battalion moved out before 6:00 a.m.; at about 7:30 a.m. Colonel Laffargue of the 130th Infantry and Colonel Chabrol, the advance-guard commander, were killed without knowing that the support of the advance guard had been destroyed, although the fight took place only eight hundred to a thousand yards north of them and about five hundred yards *inside* the French outpost support at Bellevue Farm on the Virton-Etalle road. Due to fog there had been no artillery fire up to this time but the noise of rifle fire, combined with lack of visibility, was so great that no one could determine what, or where, units were in action. This action was a crushing defeat of the French advance guard. It would have been probably an even more serious reverse had the commander of the French 8th Division ordered the outpost of the night before to form the advance guard of the morning of August 22 (Chapter Eight, Section V).

The march order of the column commander, which may be preceded by a warning order, announces the troops that will be in the advance guard and fixes the hour at which a specified part of the advance guard will pass an announced initial point. The route, or zone and objective of the march will be announced, as well as any

special things the column commander desires to have accomplished. A time table of advance, not to be exceeded, may be announced, though as a rule advance guards are usually behind schedule. The advance-guard commander will be told where to send his reports. In other words, the column commander gives the "what, why, where and when" of the advance guard, leaving the "how" to the decision of the commander of the advance guard.

In addition to being prepared to change promptly to a combat formation, the advance-guard commander must move his advance guard in such a manner as to give it even more protection against enemy air missiles, long-range artillery fires and armored fighting vehicles than it had during the approach march. The future will probably see an increase in these kinds of enemy activity directed against advance guards.

The advance-guard commander himself should issue a warning order. His own companies may be scattered, attached troops may be distant and hard to find. Moreover, no one likes to be roused suddenly and marched against the enemy without breakfast; empty stomachs lower morale.

The order issued by the advance-guard commander will be in the familiar five-paragraph form, and is quite likely to be oral.

Paragraph 1 contains information of the enemy and of friendly supporting troops as known to the battalion commander. It will be quite possible that the advance-guard commander himself knows nothing of the enemy. It will also be possible that the information of the enemy, if any, given in the order of the column commander, is scanty and even erroneous. When the advance guard of the French 8th Division started north from Virton on August 22, 1914, the information of the enemy given in the division commander's order read as follows: "Small camps of the enemy are reported in the Etalle-Arlon region. Larger groups are in Luxembourg." Etalle is only some six miles north of Virton, and, as we have seen, de Busserolle's battalion, support of the advance guard, was cut to pieces inside the French outpost line before it had gone one mile north of Virton. In the right division (the 7th) of this French IV Corps, the 14th Hussars, acting as advance cavalry of the corps, passed the support of the advance guard after the support had started the march. This delay of the advance cavalry was

due partly to orders, partly to its main body losing its way in the fog. So, we may argue that the advance-guard commander may wisely maintain a degree of skepticism regarding both reports on the enemy and statements of what friendly troops are going to do. But such unvoiced skepticism must serve only to incite him to make every effort to maintain his own freedom of action to apply power, happen what may; it must not serve as an excuse for not attempting to carry out his mission.

Paragraph 2 gives the direction of march of the advance guard and the make-up of its various elements. These elements are noted in the order of their ability to execute reconnaissance. So we find noted under their commanders, first, any advance-guard armored fighting vehicle or cavalry units which reconnoiter far to the front under orders of the advance-guard commander. Next we find the support commander announced, with a list of the units under his command. The advance-guard commander might attach all, or only the scouts, of the intelligence platoon of the battalion headquarters company to the support. If the advance-guard commander has decided to attach the more mobile units to the support, he would simply so announce, leaving it to the support commander to give them their orders. Finally, listed in order of march, we find the units composing the reserve.

Paragraph 3, as in all field orders, gives the details of execution for the separate units of the command, beginning, in this case of the advance guard, with the more mobile units working ahead on reconnaissance missions.

These details of execution are placed in a separate sub-paragraph for each unit. If the advance-guard commander has turned over the attached armored fighting vehicle and cavalry units to the support commander, he will say nothing about them here. If, on the other hand, he has kept them himself, he will announce their orders here. These orders will state place and time of departure and the roads or areas to be reconnoitered. Added to these will be any special missions to be carried out. For example, the order received from the column commander, or study of the map, may determine a line of the terrain out in front which the advance-guard commander would be glad to know is free of the enemy in order that he may march toward it without hesitation. The more mobile

units in armored fighting vehicles, motor vehicles, or on horses can reconnoiter such lines. These more mobile units will report what they discover to the advance-guard commander, also to interested unit commanders intervening between them and the advance-guard commander.

Corps or divisional cavalry, operating independently of the advance guard, may have been over the terrain and may have information regarding the presence or absence of the enemy, but this information does not always reach the advance-guard commander. Colonel Grasset writes that on August 21, 1914, the 14th Hussars was acting as IV Corps advance cavalry in front of the French 7th Division. It had cleared away German cavalry from the crossing of the Chiers at Charency, but due to failure to receive this information the 7th Division advance guard lost two hours in reconnoitering and preparing to force a crossing at Charency. This delayed the division so that it reached its bivouac after dark and was unable to push out its outpost line as far as had been ordered by the corps commander. At one time during the day the commander of the 14th Hussars was near the division commander but failed to inform the latter of the known presence of enemy infantry battalions. The division commander had held in hand his troop of divisional cavalry, neither sending it out himself on a reconnoitering mission nor attaching any part of it to the advance guard where it would have been useful for reconnaissance. On the following day the 7th Division, at Ethe, paid a terrible price for the failure of the 14th Hussars.

In the next sub-paragraph of paragraph 3 we get to the foot troops, the support. The details of execution are the place and time of departure.

To a very considerable extent, the advance-guard commander delegates his reconnoitering duty to the support commander, for the support commander has his own units (and sometimes has units attached) for the purpose of reconnoitering.

The job of the support commander is to reconnoiter and to provide security both for his own unit and the troops behind his unit (Chapter Eight, Section III). He must handle his support so that the advance-guard commander will have freedom of action to apply power in either attack or defense. In doing this the support com-

mander throws out small groups to the front and flanks. These patrols not only seek information but also act as buffers in case of attack. Now, our manuals and regulations properly inculcate the principle that an officer shall be given a job and the means to do it, after which he shall be left alone. This is true in principle but the question of individual qualification enters into all assignments to duty, particularly at the beginning of a war. The support commander, according to our practice, secures the march of the reserve of the advance guard and executes the necessary local reconnaissances on the front of the advance. When a battalion forms the entire advance guard, the support would probably be a rifle company, with the rifle company commander performing the duty of support commander. A section or platoon of the machine-gun company might be attached to the support. The support may have attached to it such specially mobile units as armored fighting vehicles and cavalry. If this support commander is an officer of limited experience he may have few or no ideas concerning the proper use of such specially mobile units. For a time, at least, the advance-guard commander will be well advised to carefully observe how the support commander carries on with his job. When contact with the enemy is likely, the advance-guard commander will be well forward where he can give orders for the employment of the support.

The next sub-paragraph gives details for starting the reserve. The advance-guard commander will announce the distance at which the reserve will follow the support, usually at about six hundred yards. The job of the reserve is to do any fighting that is necessary; it has the greater part of the riflemen, nearly if not all the machine guns and infantry heavy weapons, as well as any attached engineers, light artillery and tanks. While the support is supposed to reconnoiter and secure the front of advance, the advance-guard commander may have to think in terms of sections to squads in putting out any flank patrols he deems necessary to further secure the march of the reserve.

The engineers, light artillery and tanks attached to the advance guard will each be told where to march in rear of the reserve; the light tanks may be on trucks and may have to advance by bounds.

For tactical reasons, the light artillery also may advance from position to position.

In the last sub-paragraph of paragraph 3, lettered "x," will appear any instructions applying to the command as a whole, such as individual conduct on the march, readiness for prompt action, smoking, readiness of gas masks, measures against aircraft, and so on.

Paragraph 4 contains instructions regarding the automatic functions of the battalion commander; where and when the battalion section of the regimental field train (if with the battalion) is to report to the regimental commander. The kitchen section also will be sent to the regimental commander, while the combat train will be ordered to march at the tail of the reserve and in front of any attached transport such as ambulances from the medical regiment, an engineer vehicle, an extra signal vehicle of the division signal company and so on. Issue of extra ammunition may be directed, and disposition of the emptied vehicles; these latter might carry the rolls of the support and as many other foot units as practicable. Instructions as to where prisoners will be sent will be announced.

As in all field orders, Paragraph 5 will contain a statement as to where messages for the advance-guard commander are to be sent; this is usually the head of the reserve where the advance-guard commander's command post group habitually marches.

Once having supervised the start of the advance guard, the advance-guard commander should not be obliged to give it further attention as regards its movement. Like all security detachment commanders, he should be free to concern himself with his intelligence and operations functions: he has to think in terms of the surrounding mile of terrain and the next half-hour of marching. His staff officers should foresee and take care of any incidents of the movement, and these may be many. We usually think of an advance guard as marching along in a formation like a spearhead on a shaft, with its patrols moving along at regulation intervals and distances over open country or on nearby parallel roads. But cut-up, wooded, sparsely-roaded country, as well as villages and fences of various sorts upset these arrangements. The region may be unmapped and fog or smoke may render objects invisible at five paces. Congestion in the streets of a town may render it advisable

to make a detour. It may be necessary to avoid a road through thick woods in order to progress more safely across open country, which raises the question of the ability of the wheeled transport to follow. We usually think of one advance guard per column, moving along a road; it is possible that a main body might have two or more advance guards moving abreast of one another regardless of roads. The need for several advance guards abreast of one another may become definite if there is a chance that the enemy will be met within a short time. Good distant reconnaissance by air corps, armored fighting vehicles or cavalry, and thorough reconnaissance by fast-moving elements of our advance guard should operate to minimize the need for several advance guards.

Not only must the advance-guard formation be supple and elastic in order to move over different types of terrain; it must also have these same qualities in order to maneuver. The advance-guard commander may have to move up his reserve companies abreast of his support on a wide front in order to go through a suspected wood; to approach, pass through and around a village or other suspected place. An advance guard composed of a battalion of infantry can push away small parties of the enemy but even at that, determined opposition by enemy automatic weapons can cause lengthy delays. The advance-guard commander may deem it necessary to place his artillery in readiness to fire, bringing it forward when the suspected area has been reconnoitered.

When the advance-guard commander gets along toward the end of his march he may find that the column commander has ordered him to send away one or more companies on missions, and that his advance guard is much reduced in strength. He may have to engage under these conditions and he may unexpectedly find on either flank friendly units which have been sent up by the column commander to aid him, or which may turn out to be security detachments of his own column or adjacent columns. In this case there must be prompt meetings of commanders with resultant cooperation. Chapter Eight, Section III, gives an illustration of the support commander under these conditions.

Study of the advance-guard actions of August, 1914, shows that in many cases the movements of both sides stabilized within limits of about two thousand yards. The troops attacked could always

hold the attacker somewhere. Fire power of automatic weapons has increased vastly since 1914; if advance guards of the future expect to progress quickly despite opposition they will have to have armored fighting vehicles that can move on and crush enemy nests of automatic weapons as well as the means of defense against enemy armored fighting vehicles.

But when an enemy intends to stop our advance guard he can do it if he deploys enough means. When his support can advance no farther without aid the advance-guard commander can maneuver by extending his front and using his machine-gun company, the infantry heavy weapons and any attached troops such as light artillery and armored fighting vehicles. He can act with confidence and on a quite broad front, for back of him are all the resources of the column. This action should develop the situation as far as is within the power of the advance-guard commander. A prompt, speedy attack may throw the opposing troops on the defensive, possibly on terrain illy-suited to a defense. Ultimately, however, the job as advance-guard commander ceases, and he becomes one of several battalion commanders engaged in attack or defense, the methods of which we shall take up in Parts 3 and 4. Normally, he may expect early and definite orders, possibly artillery and infantry support, from the column commander. The column commander is responsible that signal communications are pushed forward to the command post of the advance-guard commander.

Colonel Grasset, writing of the advance-guard action at Virton on August 22, 1914, states that the leading battalion of light artillery in rear of the reserve opened fire an hour after the battle had commenced. This fire was directed on points assumed to be beyond the leading French infantry elements, as, due to heavy fog, nothing of what was happening could be seen. This fire had the desirable effect of cheering up the hard-pressed infantry. At 11:45 a.m. the remainder of the divisional artillery and some of the corps artillery opened fire on somewhat vague enemy artillery positions and infantry movements. This is one case where the infantry had to go it alone without effective artillery support. The German infantry was in much the same fix (Chapter Three, Section I; Chapter Eight, Section V).

As a result of the enemy's action, the column commander's orders, or both, the advance-guard commander may be confronted with a sudden change from an offensive to a defensive mission. If so, he will be glad if he has in hand a reserve of fire and movement; fortunately, every advance-guard formation has in it the germ of a defensive formation.

On the march the advance-guard commander may deem it advisable to send out sections or squads from his reserve as fixed or moving flank patrols, or the column commander may order him to do this. As these flank patrols will fall behind, they may not return to the battalion for some time.

If a long halt is made during the course of a day's march, a march outpost is established by sending units of the support to occupy such places as give observation over the routes by which the enemy may approach. Lively patrolling is maintained. At the end of the march the advance guard may be employed as the outpost of the halted column (Chapter Eight, Section V).

The advance guard may have to move at night as did the troops of the German 9th Division from Etalle toward Virton on the night of August 21-22, 1914 (Chapter Eight, Section V). (See Diagram No. 3). All precautions for night marches heretofore mentioned must be taken with additional consideration given to the facts that the terrain may be unknown or unmapped, that lights and noise must be eliminated and that enemy fire and movement may be met (Chapter Seven). Fewer troops will be used, distances will be reduced and reconnaissance will be slow and likely to give only vague results. As in night attacks, the bayonet will be of more use than fire; but fire, including that of the machine guns, infantry heavy weapons and attached units, will be needed when daylight comes on.

III: SUPPORT OF ADVANCE GUARD

When a battalion is employed as the support of an advance guard the battalion commander becomes the support commander. His work is quite different from that of the advance-guard commander. Up to the moment at which the enemy is met the job of the support commander is limited to securing the march of the reserve of the advance guard and carrying out the necessary local

reconnaissances on the front of the advance. There is little independence in the activities of the support commander; tactically speaking, he is closely bound to the advance-guard commander who is never very far distant and who may march with the support commander. We have seen that an advance-guard commander must look at events from the viewpoint of the column commander; in like manner the support commander must be able to put himself "in the skin" of the advance-guard commander. This is particularly true as regards the intelligence functions of the advance-guard commander, for the units useful in reconnaissance are attached to the support and the support commander—the real reconnoiterer of the advance guard—is charged with using them so as to cover the advance. The information he secures he sends to the commander of the advance guard.

The support commander may have various units attached to his battalion. As reconnaissance is the primary mission of the support, he may expect to have part of any rapidly moving units that are at the disposal of the advance-guard commander. Fast armored fighting vehicles, riflemen and automatic riflemen in motorcycles and touring cars, a small cavalry unit or mounted infantrymen can be of great use to the support commander.

While a battery of light artillery might be of value to the support commander in securing the march of the reserve, its presence with the support would be embarrassing; it would be so far forward as to risk being fired on by enemy small arms. Also, if surprised by the enemy, the support might have to fall back, in which case the battery might be lost. The reserve is the principal fighting part of the advance guard and the light artillery with it is sufficiently far forward to aid the support with its fires. An artillery liaison detachment, however, marches with the support. A platoon of the regimental howitzer company might be attached to the support. If the support is to be able to beat off enemy armored fighting vehicles it will need a more powerful weapon than the caliber .30 machine gun and the infantry heavy weapons (Chapter Two, Section II, Note 2).

The support commander thinks largely in terms of patrols, their respective degrees of mobility and their routes and positions on the terrain.

The order received by the support commander from the advance-guard commander (which may be preceded by a warning order) will announce the units comprising the support and the time at which a given element of it must pass an announced initial point. Study of the order will bring out the route to be followed and what maps apply.

If friendly units of armored fighting vehicles or cavalry are operating out in front independently of the advance-guard commander, the support commander will be so informed. If similar smaller units are operating out in front under the order of the advance-guard commander, the support commander will be informed of what these units are to do to aid the march of the advance guard. The advance-guard commander may be able to tell the support commander that the infantry airplane will drop messages from time to time, or otherwise indicate presence of the enemy.

The automatic functions of the support commander. The kitchen section of the combat train will march under order of the column commander, where it will be out of the way. Experiences of some of the French advance guards in August, 1914, show that it is wise to issue the extra ammunition earlier than they thought it advisable to issue it. When this is done, rolls can perhaps be placed in the empty ammunition section vehicles, which will then be marched under order of the advance-guard commander. The medical section of the combat train and any units attached from the medical regiment may march behind the support or march elsewhere under the order of the advance-guard commander. Just what the support is going to be able to do in case the enemy is met in strength is uncertain. The fluctuations of battle may be sudden even though they may not involve much distance in advance or retirement. The material remaining in any loaded ammunition section vehicles and the medical section can probably be brought up when and where it is needed after the support commander has gained some idea of what he is to do; these sections will be far enough forward if they march back of the reserve of the advance guard.

The intelligence functions of the support commander. Our field

manuals state that the support executes the necessary reconnaissances on the front and flank of the advance.

If there are any particularly mobile friendly units operating to his front, such as air corps, armored fighting vehicles or cavalry, the support commander will want to know what they are discovering, if anything. It is possible that information from such sources may be entirely lacking, incomplete or even erroneous. He may wisely be silently skeptical concerning it; such skepticism should result in his making every effort of his own to execute thorough close reconnaissance, yet not delay the advance.

The advance-guard commander virtually passes over the collecting part of his intelligence functions to the support commander. How does the support commander collect the information? In collecting information the support commander makes use of patrols sent out from his own troops. First, if the support commander has attached units that are more mobile than foot troops, he sends out patrols from these units to explore distant points to front and flank. If these more mobile units of armored fighting vehicles, cavalry and infantry in automobiles can prevent the front and flanks of the advance guard from being surprised by the effective fire of enemy light artillery or the direct fire of enemy machine guns in addition to generally reconnoitering the terrain surrounding the advance guard, it will be all that is expected of them. Here, however, terrain conditions enter largely into consideration. We all can imagine heavily-wooded, pathless regions in which armored fighting vehicles, cavalry and automobiles could not move off the main road.

The experience of several French advance guards on August 22, 1914, was that due to fog they were surprised by small-arms and machine-gun fire. It was only later in the battle that artillery was brought into action on either side. Results of air corps reconnaissance and distant reconnaissance of cavalry were inconclusive and the fog had rendered close reconnaissance practically impossible.

Second, the foot troops. To make a more thorough close reconnaissance to the front and flanks of the advance guard, the support commander will want patrols of foot troops sent out. As such patrols, even though lightened as much as is practicable, will probably move more slowly than the support itself and ultimately fall behind

the advance guard, these patrols must be started from a point in advance. It is for this reason that the support commander throws forward a sufficient number of riflemen—usually one company—to furnish these patrols. This rifle company sent forward is called the advance party; it forms a reservoir of patrols. If the march is long, or the advance party small, it will finally be expended in patrols; it will then be necessary to place another rifle company as the advance party and reform the company initially used as its patrols come back onto the road and catch up with the support.

As the details of sending out patrols are cared for by the commander of the advance party, all or the greater part of the more mobile units attached to the support might, in turn, be attached to the advance party. With a company commander of limited experience in command of the advance party the support commander would probably deem it advisable to closely supervise the work of the advance-party commander. He would do this, at least, until assured that the advance-party commander knows his job; otherwise we would have the abnormal situation of an inexperienced company commander being made responsible for the sending out of the security elements necessary to protect the head of a brigade or division column. The principles for the conduct of an advance party are not difficult of comprehension but the advance-party commander may not know them. The character and experience factors of the individual enter into all operations, particularly at the beginning of a war. No two company commanders are alike in mind or body, and there will probably be many advance-party commanders who will have few or no ideas concerning the employment of attached units of armored fighting vehicles and cavalry. It is possible that they may lack knowledge of when and where to send out patrols of foot troops.

The support commander must think in terms of the mile of terrain to the front and flanks of his support and the next half-hour of march. He may have received orders from the advance-guard commander concerning the reconnoitering of certain critical lines to the front, or he may have been ordered to investigate certain critical areas or high points in the zone of advance. If the terrain is covered with vegetation or if there is fog or smoke, the support com-

mander and the reconnoitering patrols will have to place much dependence on maps and compasses.

While the advance-guard commander deputizes the support commander to carry out his reconnoitering functions, he does not lose interest in how they are being carried out; the support commander may expect that his advance-guard commander will frequently be up with him, securing reports, supervising his work or giving orders. Similarly, the support commander may be forward with the advance-party commander, supervising the latter's job of sending out the reconnoitering patrols. These senior officers watching juniors must remember they are there to observe, supervise, *help if need be.* The junior will do his best.

In the battalion headquarters company there is an intelligence platoon; the scout section of this platoon should be of great use in connection with the reconnoitering patrols. The support commander should find the service of his intelligence officer useful in his intelligence functions.

The operations functions of the support commander. The support commander executes the necessary reconnaissance on the front and flanks of the advance. This leaves the column commander responsible for the security of the flanks of his column. The support commander may be ordered to hold down his march so as to be at announced points on a given schedule. Historical research shows that not infrequently the support moves more slowly than higher commanders think it should.

The support commander uses his support so as to secure freedom of action to the advance-guard commander. When the enemy appears in force the advance-guard commander will have to make a decision and the support commander handles his support so as to give the advance-guard commander the time he needs for this purpose. As the formation of every element of the advance guard contains the germ of a defensive formation, the support commander is prepared to quickly change from an offensive to a defensive formation should such a change be necessary. The advance party, several hundred yards to the front, acts as a buffer against a sudden rush of the enemy down the main road. As in all movements during the approach march, the formation of the support is such as to minimize the effect of enemy air missiles or artillery fire.

There may be cases in which the advance-guard commander will detach units from the support to form a flank guard. On August 21, 1914, the French I/117th Infantry formed the support of the advance guard. In succession, the advance-guard commander detached two companies to the right flank and one company to the left flank, leaving Major Treillard with only his 4th Company and a section of machine guns. The two companies on the right flank, held up south of Virton, were rejoined by Major Treillard who found the I/115th Infantry coming up behind them. This latter battalion, fourth in the column, had been sent out as a moving right-flank guard some time before by the column commander. The two battalion commanders coöperated in the attack necessary to clear Virton of the enemy. This episode shows that advance-guard actions do not always work out as we might expect them to.

On August 22, 1914, Henry's II/104th Infantry, French 7th Division, formed the support of the advance guard. (See Diagram No. 2). This support left the town of Gomery at 4:00 a.m. headed toward Ethe, lying in the deep valley of the Ton River a mile and a half to the north. Opposition by the enemy that day was not expected, and the extra ammunition had not been issued. A heavy fog limited visibility to a few yards only, and there were only a few unsuitably scaled maps in the possession of an occasional officer. Some German cavalrymen were pushed out of Ethe by the corps cavalry which pursued them eastward up the road along the bank of the Ton, the route to be followed by the support. Held up by small-arms fire where the road entered a wood a thousand yards east of Ethe, the cavalry commander called for his infantry support, Vicq's III/103d Infantry, which by 7:30 a.m. had deployed three companies in an attempt to open a way for the cavalry.

At this time, 7:30 a.m., the advance party of the support was just reaching the eastern exit of Ethe and the entire support (Henry's battalion) advanced eastward with the intention of passing through Vicq's battalion. Commencing at 8:10 a.m., Major Henry deployed his remaining companies in aid of his advance party and by about 8:30 a.m. the two battalions were deployed on a firing line sixteen hundred yards long, with platoons inter-

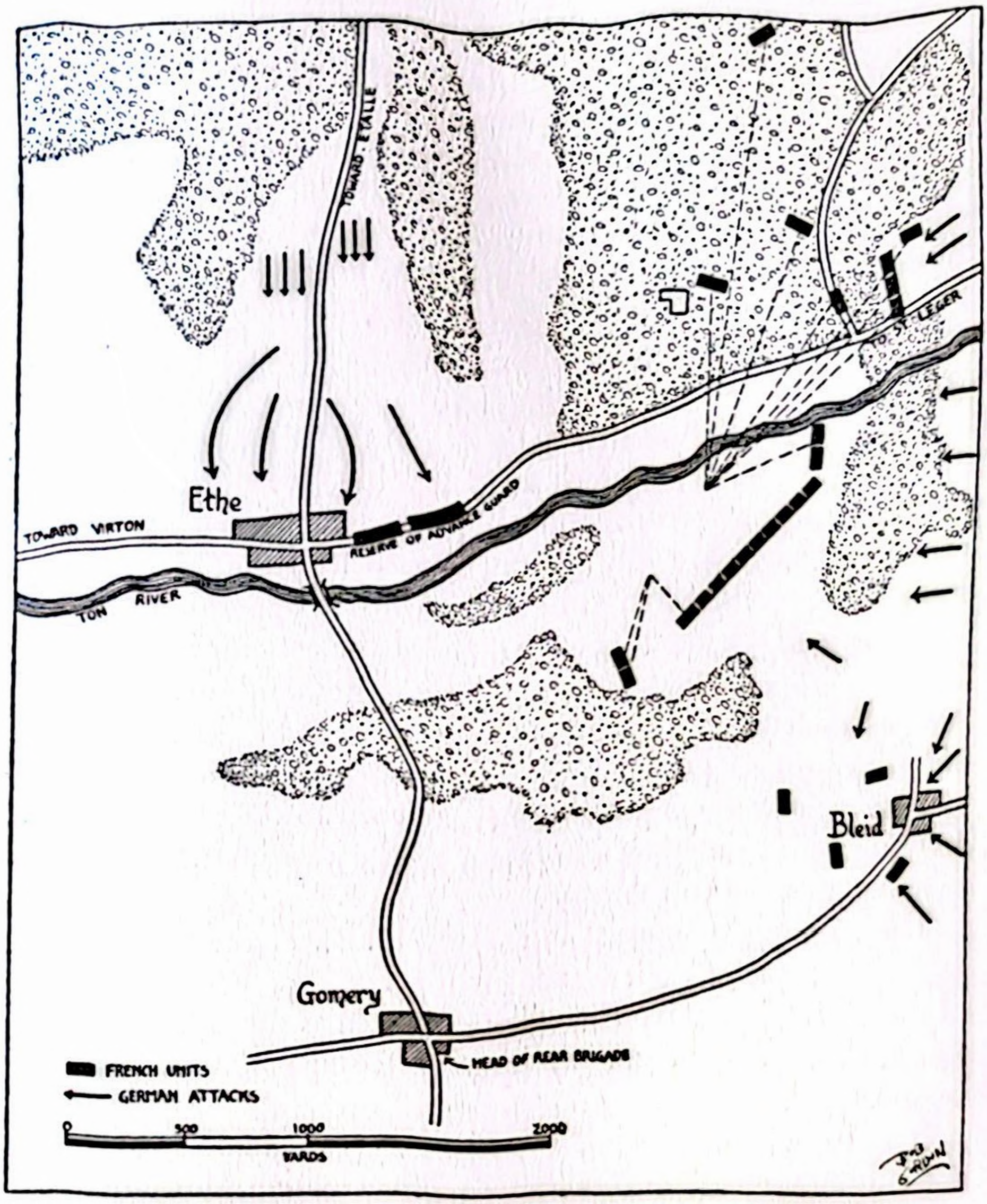


DIAGRAM NO. 2. *French corps cavalry and advance guard of the 7th Division at Ethe, August 22, 1914; also flank guard at Bleid. Situation about 8:30 a.m.*

mingled, a platoon of the II/104th alternating with a platoon of the III/103d. Losses were so heavy that by 10:00 a.m. the remains of both battalions had been forced back several hundred yards and by 11:00 a.m. the fragments found their way back to Ethe where they took up the defense of the eastern edge of the village. Of the thirteen officers with Henry's battalion, seven were killed, dis-

appeared or were captured; losses in enlisted strength were correspondingly heavy.

Henry's battalion, acting as support of the advance guard, had to move slowly and blindly on account of the fog and lack of maps. Partly due to the orders it received, partly due to becoming lost and partly because the German infantry stopped it, the IV Corps cavalry, the 14th Hussars, failed in its mission of distant reconnaissance. Henry's battalion, the support, did not secure the reserve of the advance guard against surprise because the fog precluded observation and patrolling off the road; the two remaining battalions of the 104th Infantry, reserve of the advance guard, were surprised by a close-in attack at their left. Nor did the support provide for its own security through the action of its advance party, the point of which, oddly enough, passed up the road to its objective, some six or seven miles away, without opposition.

In this example the support reinforced the action of its advance party and, by extending its front, gained some idea of the front held by the enemy. Though promptly stopped by the enemy, the combat of the support gave the column about two hours in which to take action. The light batteries attached to the advance guard were unable to give fires in support of the two intermingled battalions until later in the day.

This example is unusual in that the action of the II/104th Infantry (support of the advance guard) was superimposed on that of the III/103d Infantry (battalion employed as support of a cavalry unit), with the resultant difficulty of exercising command that may be imagined.

It was at about this time that the I/130th Infantry, support of the advance guard of the French 8th Division three miles to the left of the 7th, though deployed, was destroyed before it had succeeded in getting beyond its own outpost line (Chapter Eight, Sections II, V). All the eleven officers were killed or disappeared; only about fifty enlisted men escaped.

If the column makes a long halt during the course of the march the advance-guard commander establishes a march outpost. The support does all the work. It splits up to right and left, placing groups on avenues of approach an enemy might use in attacking. These groups push out outguards which place sentinels. If observing is difficult there must be vigorous patrolling.

IV: FLANK GUARD

When a battalion is employed as a flank guard the battalion commander becomes the flank-guard commander. Like all commanders on security missions the flank-guard commander must know the viewpoint of the column commander. This is particularly true in his case, for while the column commander is usually not far behind the advance-guard commander, the flank-guard commander, for hours, may be out of the mind of, and possibly out of communication with, the column commander. Needless to say, this condition will sometimes render it necessary for the flank-guard commander himself to determine what his mission is. The flank-guard commander has perhaps the greatest degree of independence of any commander on a security mission and the least amount of help if he runs into something; he therefore has a great degree of responsibility.

The mission of a flank-guard commander implies the defensive, but if he finds the enemy opposing execution of his mission he may have to attack and drive off the enemy.

The advance-guard commander frequently has artillery attached to his advance guard; in any event, coming along the road behind him are the artillery and infantry of the column. In the case of the flank guard there may be no attached artillery; the artillery and infantry of the column are moved along the road in the column with the idea of using their power in the vicinity of the advance guard.

Like other commanders on security missions, the flank-guard commander will want specially mobile units such as armored fighting vehicles, cyclists, cavalry, or infantry in automobiles for use in reconnoitering.

A battalion may be picked out anywhere along the column to carry out a flank-guard mission. It may be taken from the reserve of a regiment employed as advance guard or its may be the last battalion in the column. It even might be moved out of bivouac to take over and hold a critical area on the next day's march. Again, in case of a marked change of direction of march of a column, the advance guard might be ordered to convert itself into a flank guard while a rear battalion is passed through as a new advance guard.

The automatic functions of the flank-guard commander. The

flank guard may be sent out to secure and hold an area while the column marches past, or it may be ordered to march along a route marked by a series of critical points generally parallel to the march of the column. Either one of these conditions may cause the flank guard to move over terrain that is difficult or even impracticable for wheeled transport.

Necessity of a flank guard implies possibility of combat and it would appear wise to issue the extra ammunition and load the rolls on transport. If this is done early in the morning the flank guard may have need of more ammunition during the day. How can the flank-guard commander get it? The medical section of the combat train and any ambulances from the medical regiment may be unable to accompany the flank guard; evacuation of lying cases would be difficult. The flank-guard commander would probably decline his kitchen section if it were offered to him. During the day the flank guard will be fixed for a certain (or uncertain) period, or moving. In the meantime the kitchen section is with the regimental train. How is the flank-guard commander to get it back to his battalion at the end of the day? The automatic functions of the flank-guard commander will require a great deal of attention on the part of his staff.

The flank-guard commander may have units attached to his command; he may expect a platoon of the regimental howitzer company, detachments from the division medical regiment, possibly a battery of light artillery. If the battalion is sent out to hold a particularly important flank position probably a battery would be attached. Should there be an attack by enemy armored fighting vehicles, the flank-guard commander will need something more powerful than the infantry heavy weapons to beat them off.

Arrangements for communication must be made if the flank-guard commander is to keep the column commander informed of events. In battle, the regiment is required to maintain communication up to the battalion but in the case of a flank guard the battalion cuts loose from the regiment and the column commander must announce where, how and when reports are to be made. The column commander has a signal officer on his staff and a signal company; they should connect up with the flank-guard commander. The infantry airplane might be able to help.

The intelligence functions of the flank-guard commander. While the advance-guard commander may receive information from independent armored fighting vehicles, cavalry and air corps operating well to his front, the flank-guard commander may receive none from these sources. Everyone knows that a column always has an advance guard; no one knows just when and where a column commander will decide to put out a flank guard. The flank-guard commander is very much on his own. He must watch his front, his flanks and his rear. This means that the flank-guard commander himself must put out as many security detachments as does a column commander; i.e., an advance guard, one (or two) flank guards and at least a small rear guard. This consideration alone indicates what a relatively high degree of independence is given the flank-guard commander in carrying out his mission.

The flank-guard commander reconnoiters not only for the security of his own flank guard but must also send to the column commander such information as will be of interest to the latter, who would, for example, want to know if the flank guard is attacked or threatened by attack. Furthermore, a flank-guard commander may be charged also with the mission of keeping in connection with other columns marching on parallel routes.

The operations functions of the flank-guard commander. As has been stated under his intelligence functions, the flank-guard commander must move with security detachments all around his command. Like all security detachments, his formation must be open so as to minimize the effect of any enemy air missiles, machine-gun or artillery fire; furthermore, the flank-guard commander must be able to deploy promptly to the front, either flank or to the rear. It is possible that he might have to deploy in two or more directions, though proper reconnaissance and security measures should minimize surprise by the enemy.

Fixed flank guard. The flank-guard commander will probably be given an area to occupy, an area the holding of which will prevent the enemy from moving against the flank of the column. Should the movement of the flank guard be unopposed, the flank-guard commander establishes himself in the area so as to hold it against attacks of the enemy (Part 4), carries out such additional missions of reconnaissance and connection as may have been

given him, then awaits developments and further orders from the column commander. If the flank-guard commander keeps up a reasonable flow of reports to the column commander he will reassure the latter and keep himself from being forgotten.

Should it develop that the area is occupied by the enemy, it brings out a condition that is perhaps unknown to the column commander and requires the flank-guard commander to determine whether or not an attack is necessary.

Moving flank guard. The flank-guard commander will be given a route along a succession of critical points. He must move his flank guard with the same careful attention to his intelligence functions as in moving out to take up the duties of a fixed flank guard. Making his movement in a succession of bounds, he must be particularly attentive to the flank from which the enemy may attack. Much of his movement may be across rough country and his less-mobile units may lag behind. Readiness for prompt action, no less than due caution, will cause him to move by bounds.

The advance of the French IV Corps on August 21 and 22, 1914, gives two examples of moving and fixed flank guards.

On August 21, the French 8th Division was marching northward toward Virton, the 117th Infantry acting as advance guard. Major Travers' I/115th Infantry headed the main column and, four miles from Virton, was taken from the column and ordered to march as a moving flank guard along a succession of high points parallel to the column. On approaching Virton, and much to its surprise, Travers' battalion saw at its left a right-flank detachment of the support of the advance guard, consisting of two companies of Major Treillard's I/117th Infantry. These two battalion commanders coöperated in the minor attack necessary to clear the enemy from Virton (Chapter Eight, Section III). Major Travers' battalion was virtually an advance guard marching across country parallel to the advance guard of the column on the main road.

On August 22, General de Trentinian, commanding the French 7th Division, was advancing northward toward Ethe. (See Diagram No. 2). Due to an extremely heavy fog, he took measures to secure his right flank (and also to make connection with the V Corps) by detaching Major Laplace's II/101st Infantry

from its position as sixth battalion in the column, with orders to move to and hold a ridge fifteen hundred yards to the right of the route of advance. After a three-mile march, this battalion had just passed through the town of Bleid at about 8:00 a.m. when it was surprised by five German battalions. The fog was so dense that movement could be observed at only about forty yards' distance. This precluded the use of the one section of machine guns that was a part of each French infantry battalion. In hand-to-hand fighting these five German battalions destroyed the French battalion by noon. The battalion adjutant, the machine-gun officer and the battalion surgeon survived unwounded; the captain of one rifle company (separated slightly from the battalion as a result of the fog and a vague message) survived wounded; Major Laplace and eighteen of his twenty company and platoon commanders were killed or disappeared; five hundred eighty-five out of about seven hundred fifty men were buried on the field. General Moser's German brigade was then free to attack the right flank of the French 7th Division only a mile and a half distant, but, not knowing that the leading brigade, with General de Trentinian, was immobilized in the town of Ethe, he marched south instead of west.

Major Laplace was unable to carry out his mission of connecting with the French V Corps to the right; his gallant defense kept off a possible attack on the right flank of his column commander. While infantry and artillery of the column were available for aiding Major Laplace, he received no such aid. Colonel Grasset's description of this combat does not indicate that anyone in the column knew what was happening at Bleid, only twenty-five hundred yards from the column.

In this same 7th Division, Jouvin's II/103d Infantry, after doing outpost duty the preceding night, was at the head of the column at 6:30 a.m. on the morning of August 22. The column, preceded by an advance guard, was headed toward the Ton River, a mile and a half to the north, where, at the town of Ethe, the road turned squarely toward the east along the river. Despite the report of the commander of the corps cavalry that the steep banks of the Ton at Ethe were clear of the enemy, the column commander sent forward Jouvin's battalion to hold Ethe and the ad-

jacent terrain as a close-in flank guard until the column should have passed the town. This battalion had issued and collected the extra ammunition several times during the preceding days and on this day it was decided not to issue it. The battalion reached the town and was just beginning to move out from its edges when, at 7:30 a.m., it was heavily attacked by German forces that had approached the town under cover of fog. Inside of one hour part of this battalion was forced to withdraw to high ground five hundred yards south of the river, where its fragments held until nightfall. Of the seventeen officers with the battalion six were killed, four wounded.

On this same August 22, some five miles to the left, there was an interesting example of battlefield confusion. The French 8th Division, left division of Boëlle's IV Corps, Third Army, was a day's march behind the 4th Division, right division of the II Corps, Fourth Army. In the II Corps, the 3d Division was following the 4th Division. As a result of the advance-guard action of the 8th Division, a flank-guard action by the tail of the 4th Division and aid rendered by the head of the 3d Division, battalions of all these large units were engaged. One result was that on a six hundred yard front east of Houdrigny, there were engaged four battalions of three different regiments, of three different brigades, of three different divisions, of two different corps, of two different armies.

NOTES:

1. The flank guard of a retreating column may be of particular importance, for the pursuing force may send fast-moving troops to cut in on the flank and stop the movement of the retreating column.

2. American experience gives another example of battlefield confusion. On one occasion during the second phase of the Meuse-Argonne Offensive there were at least nine battalions from four divisions, all in one regimental zone of action with a depth not exceeding two thousand two hundred yards. Errors of this sort lead to confusion and losses.

V: OUTPOST

When the battalion forms the entire outpost the battalion com-

mander becomes the outpost commander. The outpost commander has about the same degree of independence as the advance-guard commander; an outpost is much like an advance guard that has halted and spread out sidewards.

The outpost reconnoiters, secures and may have to fight. As in the cases of other security detachments, the outpost commander must put himself "in the skin" of the main-body commander, for he acts as a direct representative of the latter. Such fighting as the outpost commander may have to do will be defending, and this defense will have to be conducted so as to enable the main-body commander to have freedom of action to apply power. For this reason the main-body commander will give the outpost commander specific orders relative to any defense that may be necessary.

The outpost commander may be ordered to hold a designated outpost line of resistance against the enemy for an announced period of time or he may be ordered to delay the enemy attack within certain limits of time or an authorized loss of ground. He may hope to receive aid from the artillery, possibly also from the infantry, of the main body.

The outpost is to protect the head of the main body while it is at a halt. Usually its function is a defensive one. The terrain upon which the outpost is established usually has been selected from a map by the main-body, or a higher, commander so as to protect the main body from enemy light-artillery fire. It may be expected that the terrain has been selected also with a view to its suitability for defense.

In order to avoid unnecessary marching the outpost is usually formed by a unit near the head of the column, frequently from the advance guard of that day.

The outpost commander may have various units attached to his outpost. He may expect to have a platoon of the regimental howitzer company, a unit of light artillery, possibly small cavalry or motor units for daylight patrolling. If the outpost is to repel armored fighting vehicles it will require a weapon more powerful than the infantry heavy weapons (Chapter Two, Section II, Note 2).

The outpost commander thinks in terms of the support of his outpost, his reserve, and the information he can supply to the

main-body commander. The main-body commander will establish signal communication up to the command post of the outpost.

The automatic functions of the outpost commander. If the extra ammunition is not being carried by the men, and is available, it would be issued before the battalion is broken up into the various widely-spaced elements of the outpost. The necessity of signal communication between the elements of the outpost and the possibility of casualties will dictate the prompt bringing up of the headquarters and medical sections of the combat train. The kitchen section of the combat train and possibly the battalion section of the regimental field train will be brought up; they may be back in the main body under order of the regimental commander and they may not arrive. When the II/103d Infantry of the French 7th Division established the outpost on the night of August 21-22, 1914, it had not had a substantial meal for forty-eight hours, nor did it get food, except from inhabitants of the region, before going into action at Ethe the following morning.

The intelligence functions of the outpost commander. The outpost commander may be given information concerning the enemy by the main-body commander and this information may be added to from time to time by additional reports from independent cavalry, independent units of armored fighting vehicles and the air corps. The information thus received may be scanty, and military history gives evidence that sometimes it has been erroneous. These considerations should spur the outpost commander to make every effort to carry out his mission himself without placing too much dependence on friendly troops supposed to be executing distant reconnaissance.

The outpost commander cannot carry out his mission of protecting the main body unless he secures information of the enemy. If time is available, he, his staff and the unit commanders reconnoiter the outpost area to see how it can be defended and to determine the points from which information of the enemy can be sought. The intelligence officer should be particularly helpful in this. As we shall see later, the outpost is made up of a reserve and supports; these supports throw forward outguards, and the outguards throw forward sentinels—a fan-shaped formation in which the fringe, the sentinels, represents the elements seeking informa-

tion of the enemy. While the support and outguard commanders arrange the details of sending out and relieving the elements in front of them, it is obvious that the outpost commander must announce the general line and other points from which the sentinels must observe, for the private of infantry is not competent to read the mind of the main-body commander to that extent. We need not fear that the protection which reconnaissance can give the main body is left only to the various sentinels, for these sentinels will be inspected by the commanders of the outguards from which they come, by the support commanders and, finally, by the outpost commander. It is an application of the principle: *organize, deputize, supervise.*

In addition to the more or less fixed sentinels, patrols can be sent out to keep the enemy in actual view. If the enemy means trouble, he will have to move toward us. The details of patrolling are arranged by the support commanders so as to assist in the intelligence functions of the outpost commander; they should cover the terrain up to one and one-half miles from the outpost line of resistance. The results to be obtained from patrolling increase as conditions arise that limit the observation of the fixed sentinels: night, fog or smoke, wooded areas, or accidents of the terrain. Support commanders also patrol to ascertain if everything is normal between them, their outguards and adjacent supports; they patrol on exposed flanks. The outpost commander will order such patrols as are necessary to connect with an outpost of an adjacent main body or protect an exposed flank. At night sentinels and sometimes outguards are placed in new positions, as the enemy may have noted their daytime positions with a view to raiding them during the night.

The operations functions of the outpost commander. Whether his battalion has been the advance guard or in the column, the outpost commander must place it in the area designated by the main-body commander so as to protect the head of the main body.

In order to maintain his freedom of action to apply power, the outpost commander will keep one rifle company in reserve, using his other rifle companies (or platoons, if many supports are necessary) as supports. These supports will be placed so that they can defend the outpost line of resistance, which line may have been

designated by the main-body commander. Movement at night is difficult and dangerous; the supports should be on the ground they are to defend in case of attack. In order that the support commanders may know their respective responsibilities for defense and reconnaissance in frontage, the right and left limits of the sector assigned to each support are announced by the outpost commander. Outpost areas usually have avenues of approach which we may expect an enemy to use for ease of direction and ease of movement, particularly at night or in fog or smoke. The outpost commander will place his supports so that they not only can prevent the enemy from using such avenues of approach but also sweep with their fires the areas between supports. The places occupied by supports, virtually strongpoints, should be dug in. The outpost commander will attach to the supports such machine-gun units as he deems advisable. Any attached units he may have, such as a platoon of the regimental howitzer company or a unit of light artillery, will be placed so as to utilize their fires in directions of suspected enemy attack; the artillery would probably be near or to the rear of the reserve. Any attached engineer troops could block avenues of enemy approach, or aid the supports in executing defensive work.

The outpost commander will confirm his dispositions by an order issued in the usual five-paragraph form; the order probably will be oral. This order must clearly state restrictions on fires, smoking, noise, and must announce any changes of position for the night. What everyone is to do in case of attack must be clearly stated. The outpost commander will inform the main-body commander as soon as the outpost has been established.

If the outpost is attacked the outpost commander defends according to his mission, making use of fire and movement. He may find that his units are rather widely scattered and, particularly if observation is difficult, it may be some time before he obtains effective artillery support.

If the infantry battalion is one of several battalions in the outpost, its dispositions would be essentially the same. The regimental units and attached units of supporting arms would be placed by the senior officer in command of the outpost.

Establishing an outpost is much more difficult at night than during the day; it is difficult to reconnoiter for the placing of sup-

ports, and sentinels can see but little. Small patrols can be expended remuneratively in night work, but an outpost commander will be reluctant to send out supports where he may lose track of them. An outpost established after nightfall depends much more upon instant readiness to fight effectively than upon widespread observation of the enemy, as the latter condition cannot be attained. Under such conditions, the outpost commander will hold his supports closely in hand, placing outguards and patrols on main avenues of enemy approach. The ability of an outpost to offer effective resistance, not the geometrical character of its dispositions, is the criterion. An hour before dawn all troops must stand to and patrols must be sent out to discover any bodies of the enemy that may have crept up on the outpost during the night.

On the evening of August 21, 1914, writes Colonel Grasset, the 115th Infantry, head of the column of the French 8th Division, was ordered to outpost the eastern and northern faces of the town of Virton, from which small German units had retired during the late afternoon. (See Diagram No. 3.) Coquerelle's III/115th Infantry occupied the left sector, with the 12th Company at Bellevue Farm, some two thousand yards north on the Virton-Etalle road. Fifteen hundred yards north of Bellevue Farm this main road entered a wooded region. The 10th Company was at Houdrigny, two thousand yards to the left rear, where it connected with the II Corps. The 11th Company was midway between the 12th and 10th Companies; the 9th Company, reserve of the battalion sector of the outpost, was at Virton.

The 8th Division order for the march of August 22 contained the following information concerning the enemy:

"1. Small enemy cantonments are reported in the region Etalle-Arlon: Larger groups have been reported in Luxembourg. * * *

"2. The 14th Hussars (corps independent cavalry) will march to the region of Vance" (on a reconnaissance mission).

Etalle and Vance are about six or seven miles north of Virton, and both General de Lartigue, division commander, and the IV Corps commander, General Boëlle, anticipated an easy march to these places.

Let us return to Captain Cousin's 12th Company, support of the outpost at Bellevue Farm on the Virton-Etalle road. The kitchens

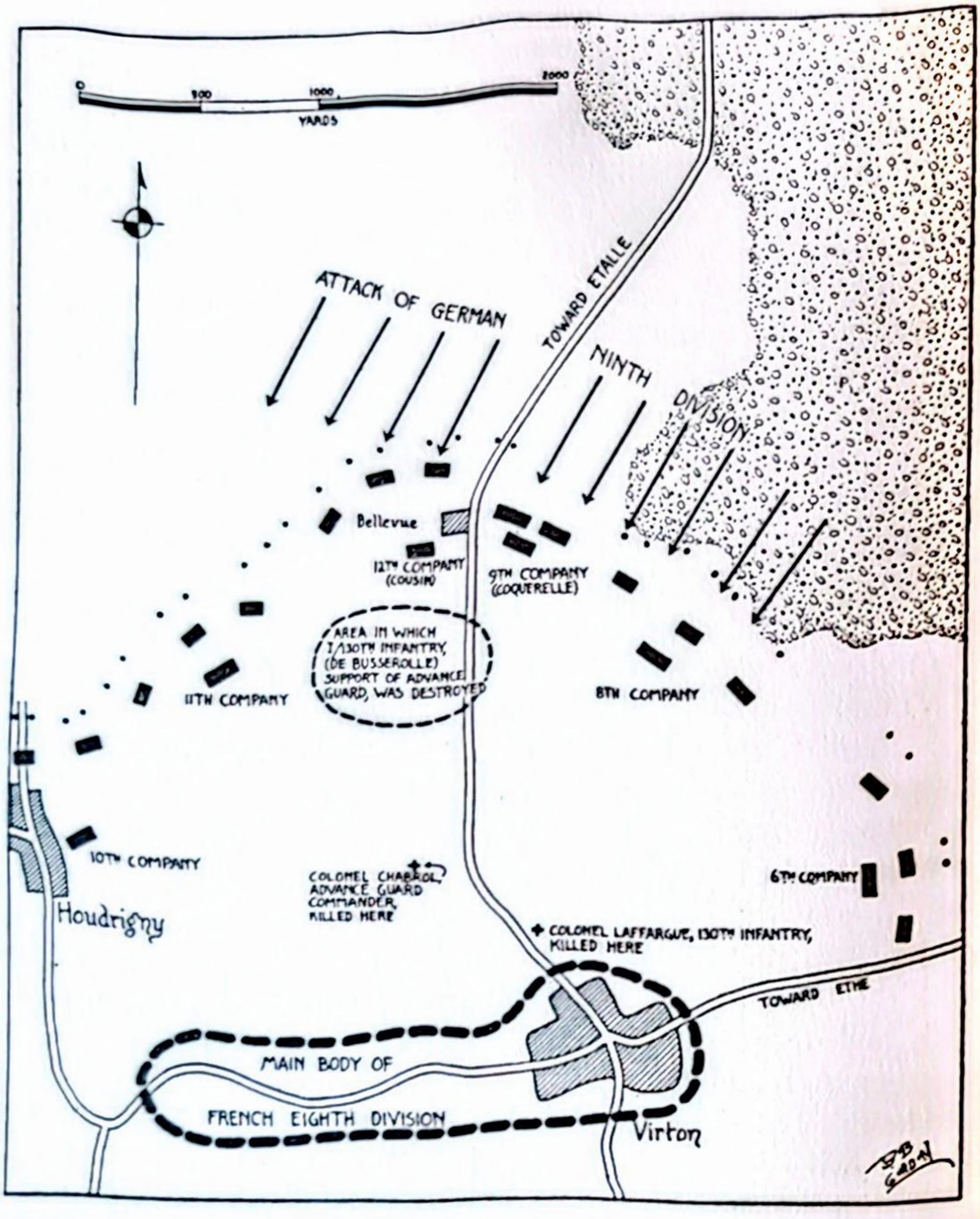


DIAGRAM NO. 3. *The outpost and advance guard of the French Eighth Division at Virton, August 22, 1914.*

did not arrive on the night of August 21-22. At about 4:00 a.m. August 22, Cousin sent a patrol northward on the road toward Etalle. After proceeding a few hundred yards, this patrol ran into German infantry, advancing south in a deployed formation. The patrol and the outguard on the road fell back precipitately on the support at Bellevue Farm. On report of this reaching Major

Coquerelle, he moved up nearly all of his reserve, placing three platoons and the section of machine guns on the right of Cousin's company. Fog prevented sending forward patrols, and at 5:30 a.m. the division troop of cavalry, preceding the advance guard of the 8th Division, came abreast of this reinforced support at Bellevue Farm. Advancing up the main road, this cavalry unit was soon forced to retreat in disorder by the German infantry and at 6:00 a.m. the 12th and 9th companies at Bellevue Farm, commanded by Major Coquerelle, were attacked by the German I and III/7th Grenadiers. Major Coquerelle and nearly all the officers of these two companies were killed or wounded in a short time. At about 7:00 a.m., out of ammunition, Captain Cousin and about one hundred out of the original four hundred men retreated toward Houdrigny. Shortly after 7:00 a.m. the two German battalions moved south about a half-mile and destroyed de Busserolle's I/130th Infantry, support of the advance guard (Chapter Eight, Section II).

What had happened on the German side? During the night of August 21-22, General von Below's 10th Division had marched south on Virton from Etalle and at dawn attacked the French outpost, then advanced and crushed the support of the French advance guard before the latter even had reached its outpost line at Bellevue Farm.

Many observations can be made concerning the day of August 22 at Virton:

a. The fog hampered the French outpost in patrolling to investigate the Virton-Etalle road, but it did not prevent the Germans from advancing, deploying and attacking;

b. Detachments of German troops had been in and about Virton for several days; they had had plenty of time to reconnoiter the region and set a trap for the French, who came into Virton for the first time on the evening of August 21;

c. Although the opponents could distinguish one another at distances no greater than about fifty yards, the machine guns of both sides rendered good service;

d. The existence of fog prevented use of artillery by either side for several hours (Chapter Eight, Section II);

e. The existence of fog confused both sides, but favored the at-

tacking Germans. We may surmise that it would have been still more favorable to the attackers had the fog been smoke, placed so as to limit the observation of the defenders while not hampering the movement of the attackers;

f. An advance guard should be detailed from the main body and not from the outpost troops, as the outpost is always liable to attack;

g. Supports should have plentiful supplies of ammunition;

h. Such scanty information as was given in orders by corps and division commanders was erroneous;

i. The outguard on the Virton-Etalle road sent out by the support at Bellevue Farm might have given further warning of the attack of the two German battalions had it not retreated precipitately on the support.

These are only a few of the lessons that can be drawn from the events of this day at Virton.

When a column is halted for a short period during the course of a march, the advance guard establishes a march outpost. The dispositions are much the same as the outpost formation described in this section, the main difference being that this march outpost must be ready to promptly resume the march. The support would break up into groups covering approaches; the reserve would be held intact. If reconnaissance elements cannot see, they must patrol and listen.

NOTE:

Under tables of organization (war strength) it is assumed that a battalion at war strength will be assigned an outpost frontage varying from two thousand five hundred to four thousand yards.

VI: REAR GUARD

A column may require a rear guard during an advance; it would require one during a retreat. An engaged battalion might receive orders to act as rear guard or a hitherto unengaged battalion could be ordered to act as rear guard after other troops have withdrawn through it.

When a battalion is employed as rear guard, the battalion commander becomes the rear-guard commander. The mission of an advance-guard commander concerns the offensive against an un-

known enemy on unknown terrain; that of a rear-guard commander concerns a defensive against a known enemy while retreating into known terrain. An advance guard leads a column that has an offensive mission; a rear guard protects a column that is retreating from the enemy. If the advance-guard job requires that the advance-guard commander stress reconnaissance, rear-guard work demands that the rear-guard commander stress defensive action and timely withdrawal.

The object of the rear guard is to maintain its freedom of action to apply power, fight off the pursuing enemy and prevent it from hooking on to the retreating column. The rear-guard commander must not count upon aid from his retreating column.

In former times rear guards feared attacks upon their flanks by cavalry. With the development of speedy armored fighting vehicles, rear-guard commanders are threatened by the action of such vehicles and motor-transported infantry against these same flanks.

The rear-guard commander is set a more definite problem than is given the advance-guard commander. The latter has to find the enemy, after which he will receive suitable further orders from the column commander; the former—the rear-guard commander —is usually given the definite problem of delaying the enemy within announced limits of time and space; he may be able to do this on terrain favoring such action. The powerful effect of long-range automatic weapons in the defense enables a rear-guard commander to force deployment of enemy infantry at distances greater than in former times. The long range of light artillery also aids in forcing such deployment. A battalion on the straight defensive requires a good field of fire at *short* ranges; a battalion fighting a rear-guard action needs a good field of fire at *long* ranges, for it does not intend to let the pursuing troops come to grips with it. As a rear-guard defensive action is not made in depth, the rear guard can deploy on a quite wide front. These considerations dictate the typical rear-guard action, i.e., the taking up of successive fire positions at considerable distances apart, enabling the rear guard to withdraw successively. If conditions are favorable the rear-guard commander may be able to thrust back the pursuer by a prompt and strictly limited attack. It is not difficult to imagine conditions that would require the rear guard to fight to the last man in order to enable the main body to get away.

The rear-guard commander may expect to have attached to his battalion a regimental howitzer platoon, as much as a battery of light artillery, additional machine-gun companies, cavalry, a chemical-troops detachment to screen movement, and, possibly, a tank unit, if he is expected to beat back the pursuing enemy from time to time. As the enemy may be expected to use armored fighting vehicles against our rear guard, the rear-guard commander must have a weapon for repelling such attacks. If rapidly-moving troops such as armored fighting vehicles and cavalry units are useful to the advance-guard commander to enable him to advance confidently due to their efficacy in reconnaissance, these same units are useful with the rear guard, for they can execute fires of automatic weapons, delaying the advancing enemy while the less mobile elements of the rear guard are en route to a position farther back. Such units would be attached to the rear guard; use of them would be difficult if they were not under the orders of the rear-guard commander. Motor transport may be attached to a rear guard to enable its foot elements to withdraw promptly from one delaying position to another. Units, foot or otherwise, left to hold off the enemy, usually must be withdrawn simultaneously.

A detachment of engineers may be attached to the rear guard to effect demolitions. This work requires close supervision and frequently is poorly done due to nervousness or to indefinite or forgotten orders. In the German advance of 1918 the British left intact many bridges over the Somme, though orders had been issued for their destruction. None of the bridges of the Aisne were destroyed by the French during the Germans advance of May, 1918, across the Chemin des Dames.

When a rear guard is sufficiently clear of the enemy to justify its moving on a road, it would form in the reversed order of an advance guard, the combat train leading, followed by artillery and the infantry heavy weapons, then the machine-gun and rifle companies of the reserve. A support, usually of one rifle company, with machine-gun units attached, would be next; the support would drop back a rear party which, in turn, would drop back a rear point. Every measure taken in an advance guard to protect itself from air missiles and long-range machine-gun and artillery fire will be taken by the rear guard, for the enemy will make every

effort to fix the rear guard in order to follow it and fight it. Any attached armored fighting vehicles or cavalry would be interposed between the rear point and the enemy, and then placed on the flanks of the rear guard.

The rear-guard commander may be given information by the infantry airplane, and he may expect our air corps to do its best against the pursuing enemy.

Night attacks and night movement are difficult, particularly for a pursuing force; if the rear-guard commander can hold stoutly the routes which the pursuing troops must use he can delay the pursuit. By making a show of defense from dusk on, a rear guard may be able to utilize the night hours in withdrawing all but some specially-mobile units left in touch with the pursuers. If the terrain into which it withdraws gives cover, so much the better.

It should be practicable for a retreating column to drop ammunition, water and food by the roadside where the rear guard can find them. Signal communication should offer no more difficulty than during an advance; sometimes, though, the higher echelons are unexpectedly prompt in moving to the rear, rendering it correspondingly more difficult to keep in touch with them. Evacuation will offer much more difficulty than during an advance.

VII: ATTACHED TO CAVALRY UNIT

Cavalry units, even with artillery attached, may have need of an infantry battalion transported in trucks as mentioned in our field manuals.

An infantry battalion commander assigned this special mission would have problems in ammunition, water and ration supply, evacuation, and would probably be as anxious about his motor transport as a dismounted cavalryman is about his led horse. The question of adjusting the differing powers and limitations of infantry and cavalry would crop up during the operation. Cavalry can move far afield and come back quickly by various routes; infantry far afield can come back quickly only if its motor transport functions.

If an infantry battalion supporting a cavalry unit is to repel attacks of enemy armored fighting vehicles, as may be anticipated, it will require a weapon more powerful than the infantry heavy weapons (Chapter Two, Section II, Note 2).

American infantry has had no war-time experience as supporting infantry in motor transport and the lessons to be drawn from French and German experience will have to be considered in connection with the less well-developed road systems of terrains other than those of France.

In August and September of 1914, infantry battalions were attached to French cavalry regiments; regiments of infantry were sometimes attached to cavalry divisions and corps. Motor transported artillery sometimes was available to support this infantry. Infantry units attached to cavalry units were used to seize bridgeheads, hold defiles, protect supply installations, hold lines behind which cavalry could reorganize. If the cavalry unit is forced to retire the infantry unit may have hard times; two reserve battalions of chasseurs, holding the bridgehead at Péronne so as to enable Sordet's cavalry corps to reform behind it, were overwhelmed by the Germans and forced into a more or less disorderly retreat which ended only at Montdidier, some twenty-eight miles away (Chapter Eight, Section III; account of Vicq's battalion).

PART 3
THE INFANTRY BATTALION IN THE ATTACK

CHAPTER NINE: DIFFERENCES BETWEEN ATTACK AND DEFENSE

"The offensive power of an army is measured solely by the willingness and capacity of its infantry to attack."

Attack and defense are both phases of battle; the same personnel and the same material are used in each but the characteristics of these two types of combat differ widely. These differences result from a number of causes.

In an attack we go forward with the idea that we are going to subject the enemy to our will; in a defense we are to a certain extent subjected to the will of the enemy. The attack usually means that we have a preponderance of strength and morale, that our artillery is prepared to put down heavy fires for us, exactly where needed, that we shall be supported by more and more of our own forces behind us, and that if we are wounded we shall be cared for. In a defense we may be weaker than the enemy, we may not be supported by more troops, we may be surrounded and we may be wounded and made prisoner. In the attack we feel that we have more freedom of action to apply power than has the defending enemy. In general, men would rather attack than defend.

Among material considerations connected with an attack are the following: we must leave shelter and advance, heavily burdened, through enemy barrages, against enemy automatic weapons, possibly over obstacles; we leave a terrain we know to advance into one less known; we sometimes leave good roads to go into a region of bad ones; in attack we present a moving target to the enemy, in defense, a fixed target; in attack we move away from the source of orders of senior commanders into places where these orders will be slow in reaching us; we move away from the supporting arms, from ammunition, water and food.

In a defense we remain in or near established shelter and, lightly

equipped, rush out at the last moment to mow down the exhausted attackers with enfilading fires from concealed machine guns; we know every fold of the terrain we are on and if we retire we can quickly occupy previously prepared positions that will cost the enemy many casualties to capture; we have good roads to fall back on; if we retire, we retire toward our senior commanders, toward our supporting arms, toward our ammunition, medical facilities, water and food. While the defending battalion has to remain in its position, the attacking battalion is able to maneuver in an attempt to get the defenders at a disadvantage.

Differences in the character of the attack as compared with the defense arise out of the mission given to the battalion commander by the regimental commander. In an attack the battalion must go forward until it is on or in front of its objective, prepared to fight in order to hold that objective; in a defense the battalion settles down to hold an area.

Movement aided by fire being the prime consideration in the attack, the battalion commander is successively confronted by changes in the situation and the necessity of issuing new orders. Each new order demands a new plan of attack and each new plan of attack requires a reconnaissance of the terrain, however incomplete the reconnaissance may be. The battalion commander is confronted by a succession of new areas over which he must attack. It is clear that we shall have more need of maps during the attack than during the defense.

In the defense, one reconnaissance determines the character of the area which is to be held. In the attack, the battalion commander must adjust his movement and fire to constantly changing terrain, remembering that such supporting fires as he may receive from the machine guns and artillery are intermittent; in the defense, the first arrangements for fire (including those of the artillery) generally hold good throughout the battle. All of this means that the battalion commander has to exercise his initiative more during the attack than during the defense.

Prior to the assaults that take place during an attack there may be conferences between the battalion commander and his subordinates; during a defense the battalion commander is out of communication with his subordinates for long periods. However, at-

tacking battalions as well as defending battalions have been pinned to the ground for hours, with no one able to move.

In the attack, the assault companies of the battalion move forward, each company being confronted by new situations, many of which must be met by the action of the company commander alone; the commanders of assault companies have to exercise initiative. In defense, the combat companies have the job of holding a definite area. In the attack an assault company thrusts forward with the expectation that adjacent units or units in rear will come along to help. In defense, the companies, their platoons and sections, may find themselves isolated by the enemy; the adjacent units may have given way.

While movement is not entirely absent in a defense (reserve elements may counterattack) the fires of the companies and attached units are the principal powers brought to bear on the enemy. The fire effect of the battalion is developed to its greatest efficacy only through the combination of fires of its various units; this means that the battalion commander himself must arrange these fires, and thereby leave to the company and attached unit commanders a lesser degree of initiative in preparing for the defense.

As movement is the prime consideration in the attack, the commander of an attacking battalion thinks in terms of larger units than does the commander of a defending battalion, the backbone of whose defense consists of fires. Commanders of attacking companies, of necessity, must be allowed to exercise their initiative during the advance, whereas defending companies, platoons and machine-gun sections must be placed by the commander of the defending battalion.

Infantry must make every effort to keep its attack going; the impetus of the attack of even very tired men is great, and the enemy is tired too. The moral effect of an advance endows the attackers with additional strength and correspondingly lowers the resistance of the enemy; this explains the ability of a small assault group to capture or push back larger groups of the enemy. Moreover, if attacking infantry pauses unnecessarily, the enemy infantry is thereby allowed a degree of freedom of action; it can think, act and better prepare to check our advance when we resume it later. In the assault on the Buzancy plateau on the fourth day of

the Aisne-Marne Offensive, the 18th Infantry alone captured more prisoners than the number of men in its assaulting units.

Ground once captured by the infantry must be held firmly in order to justify the price paid for it. Only definite orders from higher authority are competent to order the abandoning of ground once taken. *The History of the 1st Division,* telling of the operations along the Meuse, states: "The platoon commander (a lieutenant of the 26th Infantry) upon receiving a verbal order from the neighboring troops, refused to withdraw, saying that it was a mistake and adding, with characteristic spirit 'The 1st Division never gives up any ground that it has taken.'" Sometimes it is advisable that ground be given up on order.

In the early days of warfare, man, to a considerable extent, turned to artificial methods of protecting himself. Troops fought shoulder to shoulder in formations that were many ranks deep; individuals were given body and head protection by means of armor and shields. Developments in arms have lessened if not completely nullified attempts at body protection for the footman. So that at the present day attacking infantry, keeping close to the ground and thinly spread out, making use of covered avenues of approach, wearing uniforms of colors that blend with the terrain, has abandoned the artificial methods of a former day and turned to copying the instincts of animals. The most successful, least costly infantry attack is the one in which the infantry best conforms to the methods of a tiger in attacking its enemy, advancing under such cover as the terrain gives, avoiding being seen and being fired on, and pouncing suddenly upon its prey. But how many times will infantry find itself attacking over flat, coverless and fire-swept ground? Under these conditions it must make the best of it.

In defense also we have turned to the instincts of animals. At Waterloo, the British squares opposed their fire and bayonets to the assaults of the French cavalry and infantry. In these present days, defending infantry conceals itself like a coiled adder, and suddenly darts upon the unsuspecting assailant the fires of quantities of automatic small arms. When a battalion commander takes advantage of a smoke screen, he emulates the squid.

The transition from the attack to a defensive may be abrupt: Whittlesey's battalion of the 308th Infantry attacked in the

Argonne on October 2, 1918, reaching the Charlevaux road. Due to the absence of adjacent assault battalions he was forced into a defensive from October 3 to October 6. During the course of any attack, the battalion may have to take up, momentarily, a defensive attitude. This defensive attitude is always assumed with the idea that the attack may be resumed from one minute to the next. As both attack and defense formations are arranged in depth, we see that every attack formation contains the germ of a defensive formation and vice versa.

In the following discussion of the attack, and later in the defense, we shall take up the incidents of battle in considerable detail. In actual practice of course, these incidents do not occur as exact steps one after the other; they overlap in time: also, they do not occur in the order in which they are discussed. Furthermore, as the battalion becomes a veteran battalion, the impulse of the battalion commander becomes less necessary; the commanders of companies and attached units know the methods of the battalion commander sufficiently well to anticipate what he wants done.

CHAPTER TEN: ORDERS RECEIVED BY THE BATTALION COMMANDER

Warfare occasionally provides instances of a battalion commander being required to attack without having had orders to do so from a senior commander. In the future, swift enemy armored fighting vehicles and motor-transported infantry may disturb our heretofore quiet marches toward battle. If a battalion in the approach march is surprised by the enemy, the battalion commander might attack with such units as have not been engaged.

The commander of a battalion employed as advance guard operates under conditions which probably will require him to attack, for an advance guard is a body of troops feeling its way into the unknown, an exploring party, so to speak. The column commander, who has issued the order under which the advance-guard commander is operating, is particularly interested in what the advance guard finds and, usually, is near the advance guard in order to receive information and act upon it. As a result of the column commander's decision, the advance-guard commander may be ordered to attack.

When a battalion commander is in a defensive formation and finds it necessary to attack, he is not badly prepared for such an exigency. A modern defense is arranged in depth, with the infantry heavy weapons and a reserve placed toward the rear. In every such defensive formation is the germ of an attack formation.

Usually, however, the battalion commander finds himself required to attack because the regimental commander has ordered him to do so. During the course of an attack the battalion commander receives orders from the regimental commander from whom he is moving away. Although the regimental commander advances his command post from time to time, the signal communications necessary to get information back and orders forward become more difficult to maintain as the attack progresses. This does not mean that the battalion commander will have no further communication with the regimental commander, for the latter is at liberty to go up to the battalion commander; so, during the course

of battle, the battalion commander may receive further orders either from the regimental commander in person, or otherwise. Conditions may hamper all means of communication and even wipe them out for days as in the case of Whittlesey's battalion of the 308th Infantry in the Argonne. We may expect that a good regimental commander will watch his battalions pretty closely at the beginning of a war, for at that critical time he does not know how good or how bad his battalion commanders may be; furthermore, he has to educate himself in what is possibly a new mode of warfare. The sensations and reactions of the individual under fire have to be reëxperienced after an interval of peace.

The course of battle brings changes in the amount of initiative exercised by the battalion commander. The first order of the regimental commander is based upon rather general information of the enemy, and his order is what he hopes will fit the case. However, after advancing from the line of departure and meeting the opposition of the enemy, the battalion commander gains a more clearly defined idea of what the enemy is doing. This information will be transmitted to the regimental commander and upon it the latter may base a further order. The regimental commander may have to wait until he himself has received an order from the brigade or the division commander. Transmitting and evaluating information require time and during this time the situation of the battalion commander may change. These battlefield difficulties sometimes have the result of rendering entirely inapplicable an order received by a battalion commander, for in some cases hours may have elapsed between the collecting of the information on which the order of a higher commander is based and the time of receipt of the order at the battalion.

During the Meuse-Argonne Offensive one infantry battalion received orders to attack a certain hill, supported by a rolling barrage. The attack was to be made at 2:00 p.m. When the order was received by the battalion commander at 4:00 p.m. the battalion was some two and one-half miles distant from the hill. This is an extreme case of bad management, but things like this occur in battle. Research of World War experience shows that in twenty-five per cent of the cases, orders were not received by infantry battalions and supporting units in time to permit them to carry them out properly.

A company commander of a support battalion writes: "Oral orders for the attack were issued by the division commander to the brigade commander sometime during the afternoon of October 7. The brigade commander in turn summoned his regimental commanders and at 8:00 p.m. issued them an oral order. The battalion commanders were called to the regimental command post of the regiment at 3:30 a.m., October 8, to receive their orders. These again were given orally and as soon as they had their instructions they hurried back to their battalions to pass the order on to their companies. But too much time had been consumed in passing the order along from one of the higher command posts to another. It came to the companies too late to be effective.

"Hurry at the expense of efficient speed seems to mark every step of this operation. The division oppears to have been too hurried in getting the attack off before it could prepare its written order and very necessary map information. Taxed as they were with tasks of getting lost troops in place after the confusion of the previous night, the brigade and regimental staffs found themselves too hurried about the work of digesting the order and passing it along to the units lower down. This hurry finally left the company and platoon commanders without any clear picture of what was expected and caused needless casualties and confusion that are difficult to excuse.

"Oral orders all the way from division to platoons can hardly hope for proper interpretation at the end of such a long chain of communication. Certainly no farther back than the regiment there should have been a written copy of the order in time to check against and avoid errors in the battalions and companies.

"The leader of Company X was summoned to battalion headquarters at 5:10 a.m., and before he could reach the command post the batteries of the supporting artillery already had begun to lay down their fire of preparation.

"Four company commanders crouched around a map on the ground near the entrance to the command post. On the map, in bold relief, a red arrow pointed the direction of advance. The names of some towns up ahead were given as possible objectives. None of us had ever heard of them and none of us remembered them at the time. Company B on the left and Company A on

the right were designated as the leading elements of the battalion, with Company B as the base. Company D on the left and Company C on the right were in the battalion reserve. The leading companies were to follow the assault battalion at one thousand meters and take advantage of cover the terrain might afford. No boundaries were given and no other information. There was not time. As the commander of Company X turned to go back to his company the German artillery's counter to our fire of preparation had begun. The attack had been scheduled for 5:15 a.m. It was then about 5:20 a.m. * * *

"To his platoon commanders the leader of Company X delivered his order after dodging his way for one hundred yards through the enemy's barrage. The platoons were directed to move forward in the order in which they were then formed. The second platoon was charged with keeping in touch with the adjacent company. All were to start upon signal from and to follow the company commander. They were not to advance beyond the edge of the timber until they had been signalled to do so. * * * The direction of attack was pointed out as nearly as possible from memory. No compass bearing could be given, but they were to keep to the right of the first town ahead. All of this was done in the midst of the enemy's barrage. Eager for more information, yet all were even more eager to press forward out of the shelled area. Giving the platoon commanders a short time in which to pass their orders along, the company was started forward. These officers were never together again."

So, after the beginning of an attack we may expect that the orders received later by the battalion commander will be less and less detailed, though probably more and more insistent, which means that as the attack progresses the battalion commander will be thrown more and more upon his initiative. He is the leader on the spot and he will have to issue orders in whatever contingencies arise—no one else will be there to tell him what to do. He must maintain his freedom of action to apply power. But in cases where the locally and temporarily defeated enemy pulls himself together and holds upon a line farther on, the battalion commander is quite likely to find himself again receiving detailed orders from senior commanders, for to dislodge this firmly holding enemy may de-

mand a gathering and combining of the strength of all the units of the division. In other words, centralized at the beginning of an attack, command decentralizes during the course of an attack and must again centralize if the enemy slows us down and finally holds us.

Let us go back and consider the order received by the battalion commander for the beginning of the attack. If the battalion commander has to leave his battalion to receive this order from the regimental commander he must give his second in command instructions concerning the activities of the battalion until his return; the battalion may change position while the battalion commander is away, it may have to move at night in an unmapped terrain, possibly under enemy fires. He will take with him members of his staff, his machine-gun officer and some messengers.

The regulations state that the orders of the regimental commander are usually oral. They may be written, and there may be a map on which the battalion commander may study the intended attack, but it must not be forgotten that the battalion commander may receive his orders in fragmentary form by means of messages, possibly in fog, smoke or after dark; the battalion commander may be either without a map or on unrecognizable terrain. Writing of the Aisne-Marne Offensive, the plans and training officer of the 18th Infantry says: "Attacks can be launched and successfully carried out on very briefly written orders, or when necessary, on oral orders; however, the danger of misunderstanding them is too great to follow this means as a practice."

Writing of the night before the Aisne-Marne Offensive, the commanding officer, I/9th Infantry, says: "About 8:00 p.m., Colonel U established his command post in the point of woods north of Chavigny Ferme. He assembled the battalion commanders there and issued the final attack orders. Each of us was given a thick copy of the division order containing the various annexes, and a summary of information. I, for one, never found time to read it, as it was already dark and I was unable to have a light after leaving the regimental command post. An excellent map having the division attack zones and objectives marked on it was also issued. This map, with the following oral orders, was all that was needed. The zones of attack and objectives were as shown on

the map. The formation was to be that previously ordered. The attack was to commence early the next morning. H hour was to be announced later. The attack was to be strongly supported by artillery and was to be preceded by a creeping barrage. The rate of advance was to be one hundred yards in two minutes, with short halts at the intermediate objectives. These halts, as I remember, were about ten or twenty minutes. Tanks were to support the attack."

A battalion going into an attack will receive its orders at some time during the approach march and, it is to be hoped, prior to its deployment. Now, these orders may be issued under conditions of hurry, exhaustion, and bad weather, possibly at night along a road. But, nevertheless, this set of orders is probably received under easier conditions than any that will exist during the course of battle. Referring to the Meuse-Argonne Offensive, the commanding officer, 26th Infantry, writes: "That night my three majors, X, Y, and Z, all of them young men not more than twenty-eight years old, came in to get their orders for the attack. We all sat down on wooden benches in the cellar. Something happened which made it necessary for me to change part of my orders. Making the changes did not take more than five minutes in all. By the time I was through, all three of them had fallen asleep where they sat."

These orders of the regimental commander may be oral orders, which necessitate pencil, paper and some light, if only a blanket-covered flashlight. Veteran troops are so thoroughly impressed by the danger of showing lights that sharp protests and small missiles have been launched at commanders' groups showing a dim light even during the march toward battle.

It is sometimes practicable, in a stabilized situation, for example, to have all company officers of a battalion present when the regimental commander issues the attack order; in this case the battalion commander may be able to omit assembling them when he later issues his own order for the attack.

Good infantry tactics, we have concluded, is maintaining (to the extent allowed by our orders) freedom of action to apply power. Now, what are the dispositions of the enemy intended to block our freedom of action? What aid in maintaining his freedom of

action will be given the battalion commander by commanders of supporting troops and adjacent battalions? What restrictions on his freedom of action are imposed by the regimental commander? He will find all this in the order given him by the regimental commander. The regimental commander will give him the "what, why, where and when" of the job, leaving the battalion commander more or less of the "how."

Paragraph 1 contains information of the enemy and of friendly supporting troops as known to the regimental commander. The whereabouts and doings of the enemy are particularly interesting to the battalion commander; if he knows these, he can more specifically build up his plan of attack. If the attack is to be made from a line held by friendly troops in front, the information of the enemy may be full. But if the attack is made in a mobile situation, the information of the enemy may be slight. Writing of the situation before the attack of the III/59th Infantry on July 19, 1918, the battalion intelligence officer states: "In the first place, we knew absolutely nothing about the strength and disposition of the enemy except that he had been, on the day just past, slowly falling back in a general eastward direction, disputing with stubborn resistance successive points of vantage. When we had relieved the 2d Battalion, 58th Infantry, that battalion had been, until a late hour, hotly engaged. Where the enemy would make his initial stand in the morning, we would have to wait and see—with the attack scheduled for 4:25 a.m."

On the night of November 2, 1918, the commanding officer, I/361st Infantry, was ordered by his regimental commander to attack and capture Hill 327. He was informed that the artillery of the division would concentrate its fires on the hill. The operation required a movement of one and one-half miles and, in the darkness, the battalion commander was uncertain as to the identity of the hill to be attacked. The fires of the divisional artillery, however, supplied definite information regarding the terrain feature which was to be captured. Without these artillery fires the battalion commander states that he probably would have been unable to launch his attack against the correct hill. The whole episode shows the necessity of having information concerning the enemy, even though it arrives in an indirect manner through the action of a

supporting arm. It might be added that a telephone wire carried forward by hand enabled the battalion commander to lift the artillery fires before making his successful assault.

In this first paragraph the battalion commander will find what the light artillery is going to do to aid him in the attack. This is a matter of great interest to the battalion commander: the supporting fires will be successive concentrations or a rolling barrage; details of what, where and when will be announced and the battalion commander will be informed of the method of starting and stopping these fires. What adjacent troops are to do will be stated.

Paragraph 2 contains the general plan of the regimental commander, the "what, why, where and how" of the attack of the regiment. It announces the mission of the regiment and its attached troops. The formation of the regiment, its objectives, its zone of action, the boundaries between battalions, the line of departure and time of attack are stated. For purpose of secrecy, particularly in stabilized situations, the day and hour of attack may be withheld until a short time before the attack. In this paragraph the battalion commander will find that each battalion has a particular part to play in the attack of the regiment as a whole and hence will find some restrictions on his own freedom of action.

If a battalion is moving up to attack from a line that has been held for some time, the plan of attack of the regimental commander can be quite specific. If, on the other hand, the battalion is moving up into a mobile situation, the plan of attack of the regimental commander is, of necessity, much more general in its nature, for he does not know exactly what he will run into.

Paragraph 3 contains the detailed tactical dispositions announced by the regimental commander to carry out his plan of attack outlined in Paragraph 2.

What are these details? They are the particular things the battalion is to do in the impending battle, the part the battalion is to play in the attack of the regiment as a whole. If any units are to be attached to his battalion, the battalion commander will find that fact noted here: for example, he may be given a howitzer company platoon, an accompanying gun or battery, a tank unit, a detachment of chemical troops, a detachment of engineers. The mission or objective of the battalion, including assistance to be given to or

received from adjacent battalions, is stated. If the zone of action, compass direction of attack, line of departure and time of attack have not already been given in Paragraph 2, they are stated here. Measures for necessary flank protection are announced. Obviously, this paragraph will include not a few restrictions on the battalion commander: he may be given orders to attack in a certain direction to capture certain objectives—a restriction; he may be given orders to pause after securing an objective—a restriction; he may be given orders to help an adjacent battalion—a restriction; the zone of action, the line of departure, the direction and time of attack—all of these are restrictions. It is to be realized that an attack in a stabilized situation usually has been planned after consulting the battalion commander; an attack in a mobile situation, which must needs be made more quickly, gives relatively little time for reconnaissance and meticulous method. At all events, the aid given the battalion commander and the restrictions placed upon him have the object of helping him to carry out his mission. The battalion commander, exceptionally, might suggest changes in the orders given him by the regimental commander, but, usually, it is difficult to make last-minute changes. If the battalion is to be in reserve its orders are much simpler and will direct the battalion commander to place it in an announced position, or to prepare to follow in trace of the assault battalion at a specified distance. Missions to give fire support to an assault battalion, protect flanks or maintain contact might be given the commander of a battalion in reserve.

Other sub-paragraphs of Paragraph 3 will show the battalion commander what the other battalions of the regiment and the units attached to the regiment will do to aid him; in case any of these units give fire support the arrangements for lifting these fires must be stated.

What the local security detachments are to do prior to the attack may be stated; instructions may be given in connection with displaying panels so that the infantry airplane can report the location of the infantry battalion to the division commander; how the gas mask is to be worn may be specified; what measures are to be taken regarding secrecy; hour at which units will be in attack positions; instructions concerning relief of units prior to attack—-all

of these and other instructions applicable to the entire command may be in a last sub-paragraph headed "x."

A thorough study of Paragraphs 1, 2 and 3 in connection with his reconnaissance should show the battalion commander what enemy elements can oppose him by fire action or shock, and to what extent the adjacent and supporting troops are going to occupy the attention of these enemy elements. For, if these enemy elements can fire on, or otherwise oppose our battalion without being subjected to the fire or movement of our supporting and adjacent troops, or those of our own battalion, our battalion may have a very hard job ahead of it.

Paragraph 4 will contain instructions concerning the automatic functions: the battalion commander will be given the location of the regimental ammunition distributing point to which the empty ammunition section of the battalion combat train reports; he will be given the location of the regimental aid station from which further medical supplies can be obtained; he will be told the place to which the kitchen section of the battalion combat train will be sent. If rolls are to be dropped, a place will be designated at which they will be turned over to the care of the regimental supply personnel. Where prisoners are to be sent will be stated.

Unexpected details creep into this paragraph. Writing of the regimental order received on July 17, 1918, the day before the attack, the commanding officer, I/28th Infantry, says: "Each man was issued two large French canteens during the morning of July 17. These canteens were issued because nearly all of the water in the area had been contaminated with Yperite gas, therefore making it almost impossible for the men to get water after they left Mortefontaine." Sometimes replacements are received just prior to an attack; they must be checked for equipment and assigned.

Paragraph 5 of the order will announce the axis of signal communication, generally along which his successive battalion command posts must be established. The location of the initial command post of his battalion will be specified in the order. The location of the regimental command post will be announced.

In the order received by the battalion commander there may be

more than has been mentioned, but time may press, and a battalion commander who picks out and acts on only the immediate essentials will be busy enough. His second in command and staff must take care of the details.

Now, in this discussion of the order received by the battalion commander we have noted the many restrictions to which the battalion commander is subjected and the aid which he is to receive. The so-called set-piece attacks of fortified positions during the World War left but few opportunities to battalion commanders to endeavor to preserve their freedom of action at the beginning of battle, for details were arranged down to and including the activities of squads. As enemy positions were penetrated their initiative had more scope, and there was always choice of places from which companies and attached units could fire and in which they could seek shelter from enemy fire. Some places were better than others and the good battalion commander utilized these. When a mobile situation developed in the last half of 1918, there were plenty of opportunities for the exercise of initiative and no doubt we shall find the same thing true at the beginning of the next war.

The good battalion commander will be the one most successful in maintaining (to the extent allowed by his orders) freedom of action to apply power. In the following chapters of this part we shall try to illustrate what is meant by maintaining freedom of action to apply power under the various incidents of the attack.

Having received the regimental commander's order for the attack, the battalion commander can confer with such individuals outside of his battalion as it is necessary for him to see. For an attack in a stabilized situation there would be time for many such conferences; for an attack in a mobile situation there would be fewer conferences, perhaps none, and the battalion staff would have to arrange many details.

So we find the battalion commander in possession of the "what, why, where and when" elements of the attack; "how" the attack is to be made by his battalion is left in a greater or lesser degree to his own decision. How he will decide to make his attack cannot be determined until he knows something about the terrain of attack. Consequently the battalion commander will now make his

reconnaissance during which he will build up his plan of attack, which is part and parcel of his decision.

NOTES:

1. With the strength given in the tables of organization (war strength) it is stated that a battalion (Chapter Five, Note 1) can attack on a front varying from eight hundred yards (for a powerful effort) to twelve hundred yards (for a less powerful effort). The width of the zone of action assigned a battalion will depend upon many things: conformation, vegetation and alteration of the terrain; quantity and quality of the enemy; quantity and quality of the attacker's troops; aid to be given the attacking battalion by supporting arms, particularly light artillery and armored fighting vehicles; strength of the effort desired of the battalion, and so on. Some of these conditions may be known only to the higher commander who gives the battalion commander his mission. The battalion is the smallest unit to be given a zone of action in the attack; its front being too wide, usually, to be directed merely against objectives in the course of an attack. However, on July 21, 1918, after five days of battle, all of the artillery of the 1st Division supported an attack of the remnants of the 2d Infantry Brigade on the town of Berzy-le-Sec, an objective of no greater area than three hundred by four hundred yards.

2. An experienced French battalion commander states that commanders of assault battalions have need of little else than knowledge of their mission, the means placed at their disposal, how they are to collaborate with other arms, particularly the artillery and the air corps, and a simple code for use in signal communications. The French infantryman assumes that those to the rear of him are going to do their part in carrying out the automatic and other functions up to the battalion.

3. If the regimental commander can effectively issue orders to the battalion commanders at their battalion command posts, instead of requiring them to make sometimes time-consuming and exhausting trips to the regimental command post, he will give his battalion commanders a much greater chance of success. After all, it is the battalions that do the fighting.

4. Orders received by a battalion commander may be very vague. It is stated that on the night of October 10, 1918, the

commanding officer, II/47th Infantry, was summoned to the regimental command post where he received oral orders from the regimental commander as follows: "The 39th Infantry is having considerable difficulty in the Bois de Fays. Their lieutenant colonel has been killed and Colonel B has been wounded. I am sending Major M over there to help them out and you will find him over there somewhere. I cannot tell you much more about the situation. General P has said that the 39th Infantry will not be relieved until the army objective is taken. Take your battalion to the Bois de Fays early tomorrow morning and help them all you can. Good luck to you and your outfit." It is evident that the decision was to be left entirely to the battalion commander.

Writing of the day of Octobe 8, 1918, the commanding officer, III/26th Infantry, states: "At 3:00 a.m., for no apparent reason, the enemy opened a violent fire all along our lines, but nothing happened afterward. Our machine guns returned the compliment and our artillery liaison officer gave his men some recreation in firing on known delicate positions in the German line. Just after this burst of fire along our lines orders from the regimental commander directed that the battalion once more attack Hill 272. The orders did not say how the attack would be made, but left this to the battalion commander."

CHAPTER ELEVEN: RECONNAISSANCE AND PLAN OF ATTACK

I–A general discussion of plans of attack for a battalion;
II–Reconnaissance of the battalion commander during which he builds up his plan of attack.

I: A GENERAL DISCUSSION OF PLANS OF ATTACK FOR A BATTALION

We have agreed that good infantry tactics is "maintaining (to the extent allowed by our orders) freedom of action to apply power." In the order for attack received from the regimental commander the battalion commander finds the "what, why, where, and when" of the attack expressed in zone of action, objective, line of departure and hour of attack. The "how" element is left largely to the battalion commander. This "how" element is the battalion commander's plan of attack.

What is a plan of attack? It is a plan for employing the powers of the companies, attached units and supporting arms to hit the enemy where the blow will hurt the most. The powers of these units consist of movement and fire; in the attack, movement is the more marked consideration, while in the defense fire is the governing factor. We stress movement in the attack, but it is to be remembered that the machine-gun company and the infantry heavy weapons bring their powers to bear only as a result of alternate fire and movement. If the supporting fires of light artillery or the aid of armored fighting vehicles are to be available to the battalion commander he must include these in his plan of attack. It is obvious that an arrangement of troops suitable for an attack over a flat, coverless plain would differ markedly from the arrangement of troops for attack over terrain that is cut up and covered with vegetation. As the plan of attack must vary with the terrain, we see that the battalion commander must build up his plan of attack either during his reconnaissance or after completing his reconnaissance; consideration of the plan of attack is inseparable from reconnaissance of the terrain.

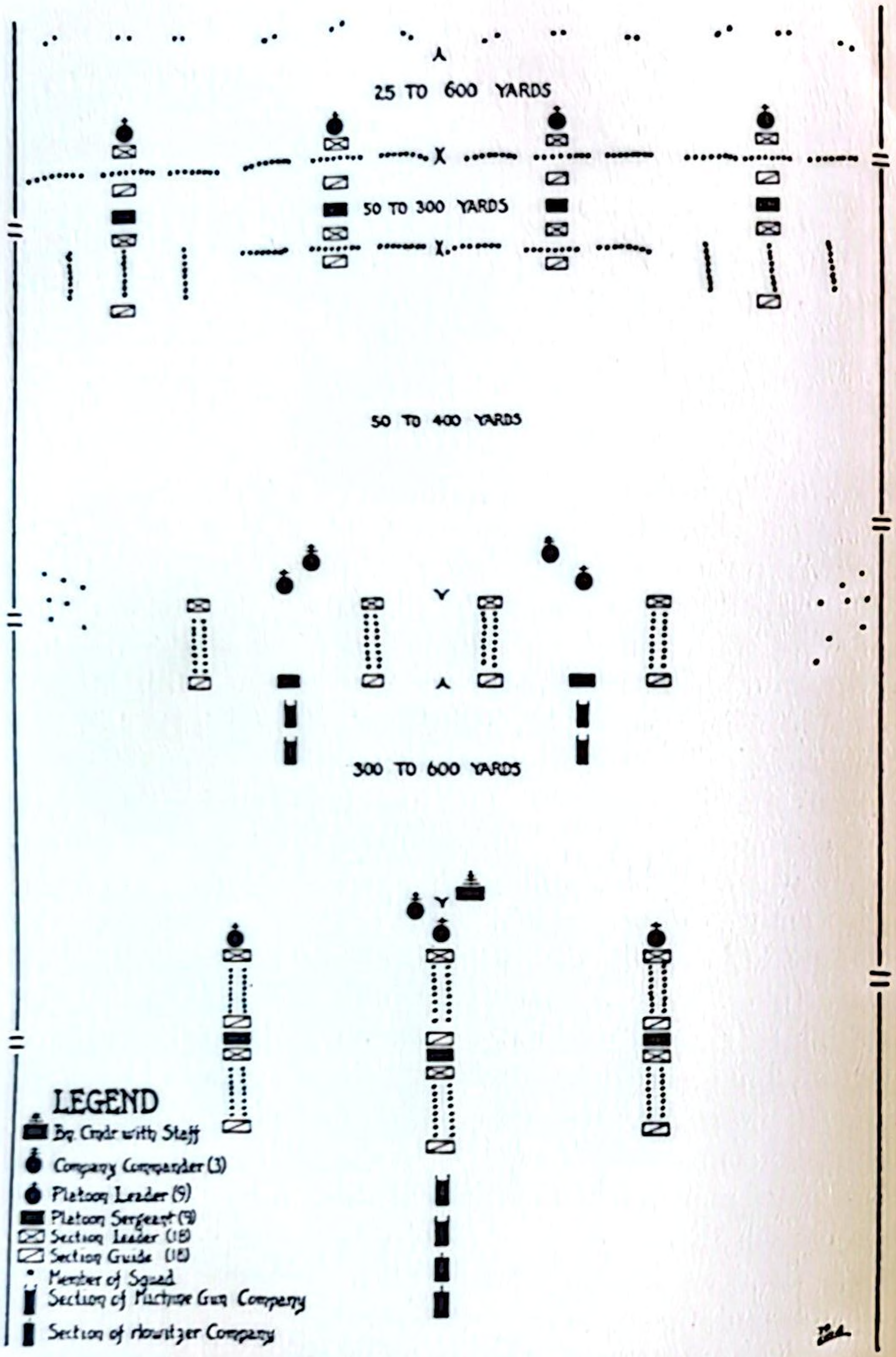


DIAGRAM NO. 4. *General appearance of an attach formation*

As the plan of attack must start building up in the mind of the battalion commander during reconnaissance of the terrain, we shall in this section of Chapter Eleven discuss, first, plans of attack, following in Section II with a discussion of how the character of the terrain, as determined during the reconnaissance, influences the building-up of the plan of attack.

The expression "plan of attack" has various meanings depending on the particular grade of commander whom we have in mind. It suggests wide, sweeping movement when we think of "Stonewall" Jackson's surprise march around the Federal right at Chancellorsville or of some of Napoleon's brilliant combinations. But plans of attack are not limited to the great masters; the platoon leader, who has the smallest unit that can be arranged in depth (one section in rear of the other section), has some small ability to plan an attack.

The plan of attack depends not only on the number of subordinate units that can be used but also on the armament of the units. The platoon leader has two sections; the armament comprising multiples of what is contained in the squad with the possible addition of a machine-gun unit. The division commander has all arms and different rates of movement represented in his division. The battalion commander is somewhere between the platoon commander and the division commander as regards diversity of armament. When we recall that he may have attached a regimental howitzer platoon, a tank unit, we realize that this diversity of armament and rate of movement must be reflected in his plan of attack. It is clear that a battalion commander's plan of attack is quite different from that of a regimental commander, for the latter commands three battalions, all of which are alike in armament and rate of movement.

Depending on what we know of the enemy and the characteristics of the terrain, we will apply more power along one direction in our zone of action that we will along other directions. We do not assign our assault companies objectives of equal width in the attack; we concentrate our effort at one point of the enemy's position. For example, we will give one assault company a narrow front so that it can attack with its three platoons arranged one behind another; such a formation gives that company commander

more freedom of action to apply power than if he should place two platoons in front and one in support. Further concentration of effort can be attained by ordering one assault company to aid the advance of an adjacent assault company. If terrain permits concealment of movement, such terrain may be used; if no concealment is practicable an opened-out formation must be used while crossing it at full speed. Terrain which is not moved over by elements of the assault companies must be susceptible of being covered by fire, be observed or be explored by patrols. Rapidity of movement under any conditions is one of the chief elements of surprise, hence one of the elements of the plan of attack.

The extent to which we expect to advance into the enemy's dispositions also enters into the plan of attack. In one situation we may venture to order the assault companies to keep going, placing no limit on the length of their advance; another situation may require that we order the assault companies to pause after having attained a certain objective.

The situation, exceptionally, may be such as to require a battalion to attack with its three rifle companies abreast; such an attack would perhaps have little driving power. On the other hand, should the battalion attack with companies in column, the attack should have considerable penetrating power.

The powers that can be applied by the machine-gun company and the various attached and supporting units are not spread indiscriminately over the zone of action; they are concentrated on targets in such a way as to best help the assault companies to get forward, particularly the assault company charged with making the main effort. Again, in a battalion zone of action there may be flat, bare areas over which it would be costly to send a rifle company; the fires of machine guns could be used here instead of the rifle company, even if positions for overhead fire are unavailable. So we see that the placing of these units is a part of the plan of attack of the battalion commander. If, due to observation or terrain conditions, these units move along with the battalion pending an opportunity to act, their manner of moving (held at the disposition of the battalion commander or, in the case of the machine-gun company, attached to assault companies) is part of the plan of attack of the battalion commander.

Similarly for the aid which the battalion commander can ask from the light artillery; the placing of its concentrations on the areas selected by the infantry battalion commander is part of his plan of attack. The assault companies will move in different ways depending on whether concentrations or rolling barrages are used. If tank units are used instead of fires of the light artillery, the assault company arrangements would again be different; one difference being that a distance of three hundred yards between the tanks and the assault companies is necessary if the assault companies are to avoid the "overs" fired at the tanks by the enemy.

Part of the battalion commander's plan of attack is the keeping of at least one rifle company in reserve, placing it so that it can be moved toward the point where it will probably be required. The reserve must be far enough back (at least four hundred yards) to avoid enemy fires aimed at the assault companies and it must be close enough to the assault companies to be able to intervene where and when required. With his reserve the battalion commander can furnish flank security for the battalion, exploit any success of its assault companies and take care of any of the unexpected, awkward incidents that may occur. If we can measure exactly the strength needed in the assault elements, we shall be able to save out a maximum reserve. Marshal Foch was an admirer of the tactics of the parrot in moving from one objective to another: when advancing, the parrot reaches forward, secures a firm grip with his beak, then, successively, brings up his feet, one by one. If the parrot can do this with speed, his advance is more effective. This is what our texts call an advance by bounds.

When, due to ignorance of the enemy's dispositions, presence of fog, smoke or unsuitable terrain, no definite idea stands out, the plan of attack reduces to its simplest terms: the battalion commander will advance his companies and attached units in the zone of action in such a manner as to find out what is in front of him with as few losses as practicable. He will arrange his assault companies (probably only one assault company would be used) well in depth, put out patrols on his flanks, move his machine-gun company and attached units so that they can apply their power promptly when required and keep his reserve ready to take measures against a maximum of surprise. In that way he will best maintain his freedom of action to apply power.

Sometimes the battalion commander will find that the plan of attack of his battalion has been built up for him by a higher commander. Writing of the Aisne-Marne Offensive, the commanding officer, II/28th Infantry, states: "The brigade orders prescribed normal formations: two assault companies, each with one machine-gun platoon attached; two support companies; machine-gun company, less two platoons, to follow battalion headquarters. Even the exact formation of the assault platoons was prescribed. Little or nothing was left to subordinate commanders. However, under the circumstances, it may have been justified. This was the first major offensive in which the brigade participated. Most of the subordinate commanders were young men. Nothing had ever been written about the formations desired. The brigade commander took no chances."

Except in set-piece attacks in a stabilized situation, it is doubtful if many tactical successes of the infantry battalion have been entirely due to clever plans of attack concocted for advance from the line of departure. But this should not keep us from giving serious thought to getting forward in such a manner that we shall be prepared to secure the best results in the situations that may develop.

In a mobile situation, where movement and speed predominate, it is obvious that the plan of attack will be sketchy. The attack on Cantigny, a set-piece affair in a stabilized situation, was made after several rehearsals, and the plan of attack gave specific jobs to individual platoons. When an operation of this sort is obligatory, we shall find that we have time not only to build up a plan of attack but also to rehearse the attack. In stabilized situations we know much of the enemy and of the terrain; in a mobile situation we may not be so well informed.

In all cases, the plan of attack that is announced in the attack order that advances the battalion from the original line of departure is based, in so far as enemy reaction is concerned, upon what we think the enemy will do. But the enemy always tries to arrange surprises for us; after we advance from the line of departure these surprises will be unmasked and the battalion commander may find that the plan of attack is illy-adapted to the real enemy situation. If his advance is stopped, the battalion commander will have to

make a new decision involving a new plan of attack. He will have more solid bases upon which to build up his new plan of attack, though his companies and attached units, by this time, may have fewer effectives with which to carry it out. But a battalion of good morale will always push on even though losses have been heavy.

In building up his plan of attack the battalion commander has to decide how to use his three rifle companies, one machine-gun company and such attached units as have been given him and he will, of course, consider how any available fires of light artillery will aid him to get his assault companies forward.

In the defense the battalion commander has to consider the placing of rifle platoons and machine-gun sections, but in the attack he must avoid thinking in terms of smaller units than his companies and attached units. At times, however, he is obliged to do this, as for example when he attaches a machine-gun platoon to a rifle company or orders that a rifle squad, section or platoon act as a patrol or as a connecting group.

The battalion commander has staff officers who can aid him in building up his plan of attack: his intelligence officer, plans and training officer, machine-gun officer, tank officer, artillery liaison officer and others are all specialists to some extent; he should profit by their knowledge.

As the battalion commander advances in his zone of action he moves into new situations and farther away from his regimental commander. Command decentralizes for a time and he will find more scope for his initiative and it is well that this is so, for he is the man on the spot and is, therefore, best qualified for dealing with unforeseen contingencies.

If a battalion commander finds himself charged with making an attack with no aid outside of his battalion and attached troops, as in establishing a bridgehead or in fighting his way to an area he has been ordered to secure (as in a flank guard), he will want plenty of ammunition and as large a reserve as he can accumulate. He must watch his flanks and also his rear. For the time being he is commander in chief of his own small army.

So much for the plan of attack, but it is to be realized that all plans of attack depend partly on the situation as regards the enemy

and partly upon the characteristics of the terrain in conformation, vegetation and alteration. We shall go into these characteristics of the terrain in the next section.

NOTES:

1. Movement is so completely dependent upon the character of the terrain that there are situations where a section *can* maneuver and, again, there are situations where a battalion *cannot* maneuver.

2. The plan of attack for an attack at night must be, of necessity, simple; it has not changed much throughout the centuries. Surprise must be attained, so we move silently, ready to stand motionless while the enemy is using flares or searchlights. Control must be maintained, so we move straight ahead in small columns that deploy into lines only when necessary to prepare for the assault. The attack is pushed only to a definitely marked, limited objective. Rifles are not loaded; the bayonet alone is used in this earliest form of warfare which is all movement and no fire. We can easily see that if reconnaissance is necessary for an attack during the day, it is quadruply necessary for a night attack. Good leadership in the platoons and smaller units is what brings success in a night attack; this means that the troops must be of excellent quality. Knowing how to make an attack at night becomes increasingly important as time goes on, for use of smoke or presence of fog on the battlefield during the day may reduce visibility as much as does a moonless, starless night.

II: RECONNAISSANCE OF THE BATTALION COMMANDER DURING WHICH HE BUILDS UP HIS PLAN OF ATTACK

(See Diagram No. 4)

After receiving the order of the regimental commander, the battalion commander has to make his own decision so that he can issue orders to his companies and attached units for the attack.

In the order of the regimental commander the battalion commander has been given the "what, why, where and when" elements of his decision, but he has not been given the "how" element, which, in greater or lesser measure, is left to the battalion commander. How he is going to apply the fires and movements

of his companies and attached units cannot be settled until he makes a reconnaissance. When he has arranged these matters, he has his plan of attack and will be able to announce his decision in an order. In the meantime he must give orders as to what his battalion is to do while he is making his reconnaissance and state where and when his officers are to report to receive his order.

In making his decision the battalion commander will seek to possess himself of any additional information he can secure by his own efforts. He can secure additional information by questioning individuals and by reconnoitering himself, or if pressed for time, by having members of his staff reconnoiter certain areas for specific information. At the least, he would want to glance at a map. There may be no map and even if he has one the scale may be unsuitable, the map may be out of date and sometimes the terrain does not match the map. As the author of *The Cannoneers Have Hairy Ears* remarks: "At four o'clock in the morning a dense wood is darker than the mind of Jack Johnson and map coördinates are not marked on the road crossings." Areas of possible battle are not all as thoroughly mapped as was the western front of the World War. If the battalion is operating in a featureless or unmapped region it would be difficult to build up a plan of attack without looking over the ground. In a sudden change from a defense to an attack the battalion commander already has considerable knowledge of the terrain. Prior to issuing orders for an attack the battalion commander will want to make a thorough reconnaissance. He may not always be able to do so, but in the time available will make as thorough a one as is practicable. A reconnaissance of some sort is necessary before he can build up his plan of attack, and his plan of attack is part and parcel of his decision which he announces in his order. Hence, in this section, we shall go into a thorough discussion of the reconnaissance with the idea that, in practice, the less important parts will be passed over if pressure of events forces the battalion commander to shorten his reconnaissance.

This reconnaissance is the first one of a series that, in time, extends throughout the duration of battle. As the battalion forges ahead, new terrain unrolls before it to front and flanks; a fact that marks one great difference between the intelligence functions of

the battalion commander during an attack and the same functions during a defense—the latter being ever concerned with a fixed piece of terrain, and more with fire than with movement. Like the commander of an advance guard, the commander of an attacking battalion must think in terms of the next mile of terrain to front and flanks and of the next half hour of time. Throughout the history of military operations the depth of any one reconnaissance has increased with the ranges of fires used and the number of such reconnaissances has increased with the rate of advance of the attack.

In past years when the range of the rifle was three or four hundred yards the battalion commander did not have to consider terrain beyond that distance. Present-day weapons reach much farther, and now the reconnaissance begins with the terrain along the line of departure, extends forward and to the flanks at least as far as the weapons of the battalion can reach and backward as far as the weapons of the battalion can be placed and yet bring desired fires on the enemy. In reconnoitering terrain within the reach of his battalion weapons, the battalion commander will gain some idea of how that terrain lends itself to enemy fires and movements against his own battalion, not forgetting air missiles. Any point from which the enemy can deliver direct fire against his battalion must be carefully considered by the battalion commander; such points must be taken care of by some element of the attackers, either by means of fire or by means of movement. The terrain in rear of the assault companies is examined as regards freedom from enemy observation, practicability of moving and placing machine-gun units, attached units and reserve. At all times the battalion commander must know how to take advantage of favorable terrain and how the enemy may take advantage himself through its use. Also, while considering the weapons of his companies and attached units, the battalion commander must figure out how he can utilize the powerful aid of light-artillery fires; this indicates the advisability of having his machine-gun officer, his artillery liaison officer and an officer of each rifle company with him while making his reconnaissance. His intelligence officer (S-2) and his plans and training officer (S-3) will be with him.

What can be seen in the course of a reconnaissance? As everyone knows, the modern battlefield is singularly empty, so it is

quite possible that the reconnaissance may fail to locate any of the enemy though it may be possible to note his trenches and obstacles. Fire can be drawn from the enemy by exposure of self, but this is a drastic method; moreover, the fires that one or more individuals might draw could come from many different points outside the zone of action assigned the battalion. Any reconnaissance by a battalion commander or staff officer must be made with due regard to personal safety; during the World War one American division staff officer on reconnaissance was captured by the Germans.

In addition to information received from the regimental commander, the battalion commander always tries to secure further information regarding any special weakness of the enemy: a salient which he can attack by converging fire and movement; a part of the position which does not lend itself to defending fires and which can be closely approached to within assaulting distance; the "key" of the defensive position which, if taken, will entail loss of the remainder.

This reconnaissance answers a rather immediate need of the battalion commander. His companies and attached units have to move to their places on or in rear of the line of departure; how can we place troops on the line of departure if no one knows where it is or what friendly, or enemy, troops are near it?

First, occupation by friendly troops. Reconnaissance up to the line of departure will give details concerning any friendly troops that are present. In a stabilized situation we might find the line of departure strongly held by well dug-in friendly troops; in a mobile situation we might find groups scattered here and there. The main question about such troops is this: what are they going to do to help or hinder us in advancing from the line of departure at H hour?

Second, occupation by enemy troops. Whatever the information concerning the enemy stated in the regimental commander's order, we cannot be sure that it is up to date. If enemy troops are in our way they will have to be pushed out if the assault companies are to advance from the line of departure at H hour. For, let us suppose that a battalion commander neglects to have a reconnaissance made and maintained, and moves his battalion toward its line of

departure. While the companies and attached units are moving toward their places they are fired on and held up. Instead of having the leading elements of his assault units advancing from the line of departure at H hour, the battalion commander will be occupied in a combat of his own and will have failed to carry out the mission assigned him by the regimental commander. If his attack was to have been supported by artillery fire, he will have lost its aid through not crossing the line of departure in time to profit by it, be it barrage or concentration.

During the Meuse-Argonne Offensive a regiment received orders at about 1:30 a.m. to make a five- or six-mile march (involving a movement in file across a damaged bridge) and attack at 5:00 a.m. An order from higher authority implied very strongly that the line of departure was occupied by friendly troops. Dispersion of the troops, length and difficulty of the movement in heavy fog, and the belief in the regiment that friendly troops were out in front determined the regimental commander to make no reconnaissance. Some of the companies moving up in column of squads were fired on by the enemy, who were met, unexpectedly, on this side of the line of departure.

Reconnaissance of the terrain bears upon its conformation, its vegetation and its alteration by erecting or excavating. Vegetation may change with the season. The conformation of the terrain, taken in conjunction with such cover as exists, will suggest to the battalion commander how he can place and, later, move his company and attached units so as to maintain his freedom of action to apply power. In other words, given the order of the regimental commander and the information of the enemy, the battalion commander's plan of attack will depend largely on the terrain. Only by reconnoitering the terrain will the battalion commander be able to determine how he can make his attack as rapidly and with as little exposure to enemy fires as is practicable.

Conformation, vegetation and alteration of the terrain are important to both the enemy and ourselves, for upon them depend the facilities for observing movement and executing fire, both of which have to be adjusted to the forms of the terrain. We attack—and defend—most successfully when we can see what we are doing.

Good facilities for observing movement and executing fire are as helpful to a battalion in attack as they are for larger units. Rolling terrain facilitating observation and overhead fire of machine guns is favorable to the attack, though it must not be forgotten that rolling terrain enables the enemy to occupy those reverse slope positions that are so difficult to attack *from in front*. Also, enemy reserves may be in position back of elevations lying across our zone of action. Ravines may allow us to advance unseen by the enemy, possibly toward his flank, but enemy machine guns may be met somewhere along these avenues of approach. These same ravines enable the enemy to advance into gaps left by the assault companies and establish machine guns enfilading our assault companies; they also lend themselves to the launching of surprise counterattacks by the enemy. In connection with the capture of the town of Belleau by the III/104th Infantry it is stated: "The battalion on the right never reached its objectives, and the enemy filtered down the ravine on our right flank. Their snipers were exceedingly active and pernicious and they had machine guns in trees in this ravine." Ravines and low ground are favorite targets for gassing by enemy artillery. Human beings have an apparently incorrigible tendency to follow ravines; this results in loss of direction during attack and consequent mixing of units.

Terrain that is cut up, much altered or with vegetation, hampers an enemy in attempting to have his adjacent units assist one another in defense by establishing intersecting bands of machine-gun fire. If the enemy is on broken terrain, the attack will meet a number of resistances which will have to be dealt with separately: one assault company, supported by a machine-gun platoon, attacking one point of enemy resistance; another assault company with the support of another machine-gun platoon attacking another point. This cut-up characteristic of the terrain may enable the assault rifle units to approach unseen by the enemy.

Flat terrain, if there is not much vegetation on it, enables a battalion commander to see adjacent troops and to combine his action with theirs. It enables a battalion commander to observe an impending counterattack by the enemy, thereby counterbalancing the necessity of having to keep his reserve farther in rear of the assault companies. It requires very open formations in companies

and attached units. It enables the infantry airplane to note where we are and to report our location and movements to division headquarters. It also enables the infantry airplane to note where we are and to give us information concerning the enemy in our immediate front. It is not favorable to the use of slow armored fighting vehicles, for these bulk large on such terrain, lose the surprise effect they are intended to produce, and become good targets for enemy weapons.

Flat terrain enables infantry to mould itself closely to concentrations and barrages, which tends to offset the fact that this same flat terrain enables the enemy to sweep extended areas with the fire of automatic weapons. On flat terrain the attack may find it difficult to make full use of the machine-gun company in support of the assault companies. Broken terrain demands much dependence on compass directions in the attack; flat terrain may enable commanders of assault companies to see their objective. Straggling is lessened in flat terrain.

Rarely is terrain so nearly level that some shallow avenues of approach cannot be found and used. All different conformations of the terrain have to be considered in connection with such alteration and vegetation as exist on it.

Flat terrain with little alteration or vegetation enables our airplanes to see us, but unmapped or featureless country will make it difficult for reporting results of their observation, for it will be impossible for them to refer to map coördinates or describe areas by reference to features of the terrain; the infantry airplane will experience difficulty in reporting the location of our battalion, also it may be unable to drop information concerning the enemy at the battalion command post; if an artillery concentration is wanted, the battalion commander will have difficulty in defining the area on which he wishes it to fall. Flat terrain may tend to keep the supporting artillery farther to the rear, with consequent increased difficulty of communication between the infantry battalion commander and the artillery commander.

Infantry can expect to get forward most easily when advancing into areas over which our light artillery has good ground observation. When the infantry is ascending a near slope, the supporting artillery can observe where its fires are falling; when the infantry

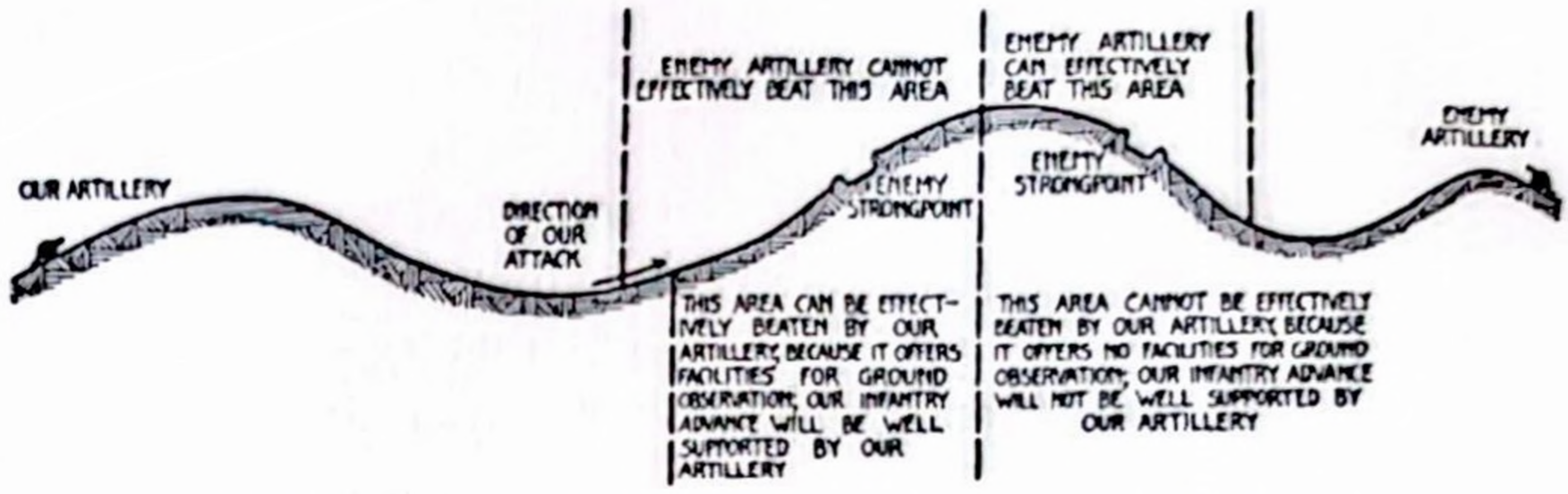


DIAGRAM NO. 5. *Infantry-artillery-terrain relations.*

is descending a far, or reverse, slope, the supporting artillery cannot have ground observation of where its fires are falling. If we put ourselves in the place of the enemy light artillerymen, we can see that their defending fire is *least effective* on the slope that our infantry ascends, and is *most effective* on the slope that our infantry descends. (See Diagram No. 5.) This explains why frontal attacks on reverse slope positions occupied by the enemy are not particularly successful. Writing of the attack of September 28, 1918, an officer of the 371st Infantry states: "The enemy artillery could not do much damage to us for the reason that the assault was made up the reverse slope from his artillery emplacements." The character of the soil has a bearing on artillery fires for, due to bursts and fragments, assault companies cannot hug concentrations as closely on rocky soil as they can on soft soil.

In widely rolling terrain there will be large areas visible to ground observation of our artillery and once our infantry has passed a crest, there will be large areas that our artillery cannot see. If a terrain is broken, there will be many small, irregularly-shaped areas, some visible, some invisible to our artillery observers. Flat terrain gives poor ground observation for our artillery.

The types of cover that exist on the terrain are important to both the enemy and ourselves for upon them depend the facilities for observation. We attack—and defend—most effectively when we can see what we are doing. All different types of cover have to be considered in connection with the conformation of the terrain upon which they exist. The presence of fog or smoke, or the coming of darkness on lightly-covered country will create an artificial, sometimes transient, cover which will present some of the advantages and disadvantages characteristic of alteration and vegeta-

tion. Anything that enables us to escape observation aids in protecting us from fire. Buildings, ravines, brush and trees do this, but they lend themselves to use of gas by the enemy artillery.

We can imagine an extreme case of tropical vegetation so dense that the mere physical effort of pushing through it would be impracticable without cutting lanes. From that type we have all combinations of woods and brush down to terrain that has little or no vegetation. Areas altered by buildings present an artificial sort of cover; house-to-house fighting has always been a slow process. Terrain with vegetation enables the enemy to conceal his dispositions for defense and find, or cut, lanes for machine-gun fire; all clearings and roads should be suspect to an attacker. Edges of woods are dangerous targets for enemy fires; if we have to pass them we must clear them promptly.

As vegetation limits the observation and fires of the enemy, the attacker can safely mass troops close to the enemy and deliver a powerful thrust. This requires him to be handy in maneuvering through wooded terrain; the French and Germans have their chasseurs and jägers who are specialized in such combat. As the enemy cannot see, or fire, very far to his flanks, he is liable to give way if we can thrust a wedge into his line.

The limited range of observation in woods and the ease with which groups of men can move out of sight not only render communication difficult within our battalion but also render it difficult to keep in touch with adjacent battalions by means of connecting groups. In open country we can see where company and attached unit commanders are; it is sometimes difficult to get to them. In wooded country we can get to them relatively easily if we know where they are, unless the woods are infested with enemy snipers, which is frequently the case.

Much dependence will have to be placed upon the compass in attacking through woods. Units can be kept longer in column before deploying, but unless scouts are freely used ahead of these columns they may be surprised by enemy fire. The difficulty of observing enables surprise by both the enemy and ourselves; it enables reserves to be brought closer to the assault companies than would be the case in flat country void of cover. If the enemy cannot see us he will strive doubly hard to hear us; men must be

silent, movements must be noiseless. In the old "cutting out parties" the navy always muffled the oars.

Difficulty of observation will render it hard for the battalion commander to build up his plan of attack unless the enemy has been provoked into showing his hand. As a result, the attack in woods is particularly likely to resolve itself into a rather disconnected series of affairs of squads, sections, platoons and companies. If a wood is small enough, the defenders should be fixed by fires from in front, while an envelopment is made; if the exits on the back side of the wood toward the enemy can be covered by fire, the enemy troops in the wood can be neither reinforced nor withdrawn.

Thick woods will hamper the use of the flat-trajectory 37-mm. gun. The 3-inch trench mortar can be used, and the slowness of an advance through woods may enable this weapon to keep up with the battalion. Thick woods render it difficult to use machine guns in the attack; placing automatic rifles in tree tops is sometimes practicable.

Dense woods enable the enemy to wire himself in without setting pickets; attached engineer troops would be useful in an attack through woods. The presence of large trees close together will prohibit the use of armored fighting vehicles; on the other hand, woods that do not hamper their movements contribute to the surprise action that should be sought in their use.

If part of the battalion must attack through woods and the remainder over open ground, patrols must be arranged to connect these two elements of a delicate operation.

The possibilities of surprise demand that the battalion commander always have at hand a reserve.

In an exercise preparatory to the Saint Mihiel Offensive, a battalion was required to go through a large, thin woods in column of platoons in daylight. All the platoons moved through except the two led by platoon leaders who had no compass; it required an hour to find the two lost platoons. Each leader of a rifle squad is supposed to have a compass. Thick woods enabled stragglers to drift toward the rear.

All this makes it clear that an unusually thorough reconnaissance is necessary in areas that have much vegetation. Terrain the con-

formation of which is cut up to a marked extent would present somewhat similar difficulties.

So much for the effects of cover as regards company and attached units. How does it affect the division and higher units that aid the battalion?

The greater part of the fires given to an attacking infantry battalion by the supporting artillery will be flat trajectory. Terrain that is covered by trees will cause premature bursts of percussion shells over our men. High-angle artillery or mortar fire is more effective in wooded regions; it can also scour out ravines that are difficult to reach into by means of flat-trajectory fire.

In the attack, artillery concentrations must be observed and lifted when the infantry is ready to move to the assault from a distance of about one hundred fifty yards. In woods, it is difficult for an infantry battalion commander to define where he wants a concentration placed, particularly if the area is featureless or unmapped. Consequently, in woods we have a combination of difficulty of definition by the infantry battalion commander and of difficulty of observation by the artillery.

Our infantry airplane will find it difficult to locate an enemy in woods, also it will be unable to quickly locate our battalion command post in order to drop messages giving the location of the enemy immediately in our front. Similarly, it will have difficulty in locating the whereabouts of our battalion and will be unable to make exact reports to the division commander. The air corps made unsuccessful efforts to drop food, ammunition and carrier pigeons for Major Whittlesey's battalion in the Argonne in 1918.

An attack on a stone or brick-built village involves slow house-to-house fighting with grenade and bayonet. If the village is too large for one battalion to capture, a definite part of it will be assigned the battalion. The battalion commander will assign specific zones of action to his assault companies. The minimum of rifle company strength should be used in attacking straight to the front; the maximum of rifle company strength should be used against one or both flanks of the village or against its rear. In the meantime, adjacent troops should attack past each side of the village. Preliminary heavy fires of heavy artillery, light artillery and infantry heavy weapons will be helpful. Wood-built villages such

as are found in the United States would be productive of splinters and fires in case artillery or 3-inch mortars fired on them; defending troops should take positions outside of such villages.

The preceding discussion goes into detail concerning what the battalion commander can determine of the favorable or unfavorable characteristics of the terrain that concerns him. It is to be hoped that the battalion commander has had a map and that for several days he has been studying the general character of the country over which he may have to attack. Throughout the duration of the attack the battalion commander has to keep up reconnaissance.

The thoroughness of this reconnaissance depends upon many conditions: we can point the extremes by mentioning, first, the several days' long reconnaissance of the terrain of attack for a battalion that is to participate in an attack in a stabilized situation, and second, the few minutes seized for reconnaissance during a meeting engagement. The reconnaissance may have to be made at night, in woods, fog, smoke, in poorly-mapped terrain, all under enemy fire. Research of World War experience shows that small infantry units were generally given an opportunity to make a reconnaissance before engaging in battle, and actually did make such reconnaissance. In some three cases of out ten no reconnaissance was made, but in such cases conditions almost always prevented the reconnaissance. A criticism of the Aisne-Marne attack arrangements is made by the commanding officer, II/28th Infantry, in that the battalion and subordinate unit commanders did not make any reconnaissance during the day of July 17. However, he adds: "There were very good reasons for not permitting this reconnaissance to be made. A French division was holding the front over which the 1st Division expected to attack. The attack was to be a surprise * * *." An extract from the account of the commanding officer, I/9th Infantry, gives an example of a reconnaissance prior to this same surprise attack. It says: "Soon after receiving the attack order I located the French commander and made arrangements to take over his front line at 9:30 p.m. He was to furnish guides, and gave the following information. There were practically no trenches or wire in the area to our front. The Germans had recently been driven from that part of the forest after

an advance and neither side had organized their positions. The Germans held a part of the forest to the northwest of us and their patrols sometimes worked down through the forest at night. Both Germans and French made it a practice to send out outposts at night and withdraw them at dawn. The German patrols were not particularly aggressive and we need not fear discovery if we limited ourselves to firing at them when they approached too closely."

Good infantry tactics, we have agreed, is maintaining (to the extent allowed by our orders) freedom of action to apply power. Exact and constant information of the terrain and the enemy in the vicinity of his line of departure will assist the battalion commander in maintaining his freedom of action to apply power.

We have, at some length, examined into the principles governing the reconnaissance; we must not forget that the exigencies of battle may limit our reconnaissance to a few hurried questions and answers, or a hasty glance at a map. As has been said before, lack of time may require the battalion commander to direct one or more officers of his staff to reconnoiter and meet him later with such information as can be secured. It may be little enough.

Partly during his reconnaissance, partly after it, the battalion commander builds up his plan of attack as he returns to his battalion. When he has finished it he is ready to announce his decision in an order.

NOTE:

During his reconnaissance the battalion commander can select a place for his observation post.



CHAPTER TWELVE: ORDER ISSUED BY THE BATTALION COMMANDER

A battalion commander may be required to attack either as the result of the situation or because his regimental commander has ordered him to attack. In either case, he has made his decision during such reconnaissance as he has been able to make and he must now announce it to his company and attached unit commanders in a field order.

A field order for attack brings up the vision of a neatly typed order in the handy five-paragraph form being studied by its recipients under the eye of the battalion commander in some quiet locality. The field manuals admit that these favorable conditions do not apply to the battalion, for they state that the field orders of battalion commanders are usually oral and in many situations may also be fragmentary. Furthermore, the old field service regulations stated: "In active operations, especially during engagements, numerous field orders are issued in fragmentary form—either orally or in the form of notes, brief dispatches, messages, orders for assembly, etc.—which do not contain all the requirements of a formal written field order, but whenever detailed instructions for operations are given, whether orally or in writing, the sequence prescribed for the body of a formal field order is preserved." There can be no doubt that every officer of a battalion going into an attack would like to have in his hands a complete field order; he would know what he has to do and he would also know that important matter of what others are going to do. For example, a machine-gun company that is to execute overhead fire in support of an assault company must know where and when and how that assault company is going to advance. But the enemy sometimes prevents us from taking time to do things as we should like to do them.

While the battalion commander has been making his reconnaissance and arriving at his decision he may have become separated from his battalion and he may have to assemble his officers in fog, smoke, at night, in wooded or unmapped country, possibly under

fire. His officers may have to take notes of his order. Troops put into an attack may have been unengaged, but they are usually far from fresh; physical and mental fatigue may have reduced some of the unit commanders to a condition in which they must have notes of what they are to do. A willing spirit keeps the legs working, but it does not insure that the brain is clear.

If the battalion commander can issue his order at a point where terrain features can be pointed out he should do so, provided he and his officers do not present a target for enemy fire.

In general, in mentioning points on the terrain, reference should be made to prominent topographical features such as woods, hills, cross roads, stream junctions, clumps of trees and so on. Map coordinates are very difficult to pick up on the ground and frequently there will be no map available.

How much time does it require for the successive activities of the battalion commander, his company and attached unit commanders? The Infantry School text on offensive combat gives the *minimum* requirements in time as follows:

1. For battalion commander's reconnaissance after he is on the ground, including forming his decision and preparing his oral orders ..... 20 minutes.
2. For issuing his oral orders ..... 15 minutes.
3. For company commanders' reconnaissance..... 10 minutes.
4. For issuing company commanders' orders and for reconnaissance by platoon commanders and issuing their orders ..... 15 minutes.
5. For deploying companies ..... 15 minutes.

Total: 1 hour, 15 minutes.

This *minimum* of time will be more nearly attained as the battalion becomes experienced and the conditions are favorable.

All officers going into an attack should have maps giving as much detail as practicable. These maps will be useful in helping to understand the order as it is issued by the battalion commander, in making such reconnaissances up to and beyond the line of departure as are practicable and in moving units into their proper places for attack. The uses of a map during the course of an attack are too numerous and too obvious to require mention. Theoreti-

cally, maps are distributed before the battalion commander issues his order.

The operations officer, 18th Infantry, writing of the Aisne-Marne Offensive, states: "Owing to a scarcity of maps showing boundaries, objectives, etc., the operations officer was engaged practically the entire day in making sufficient copies so that all company commanders could have a copy of the map. These maps proved invaluable later in the operations when, after severe fighting, troops of several organizations became intermingled and further attacks were ordered."

But maps are not always available. The commanding officer, II/28th Infantry, an assault battalion, moving up to the line of departure for the attack of July 18, 1918, states: "Maps were to have been issued to the staff and company officers at this point but they had not arrived from division headquarters and the only map in the battalion was the one the battalion commander had." Research of World War experience shows that in most cases reported, five out of six leaders of small infantry units were properly oriented by maps. Future warfare may be in some region not as well mapped as France.

In the unusual case where a battalion has been surprised and the battalion commander decides that maintaining his freedom of action requires him to attack, he would issue orders at once to the commanders of such units as are not engaged, endeavoring to hold out, or accumulate, a reserve. The normal case, however, will be where the infantry battalion commander issues an attack order because the regimental commander has ordered him to attack.

Admitting that in many cases the field order for attack will be issued not as a complete whole but rather in messages to commanders of companies and attached units, let us examine into what orders are essential. In discussing them we can logically consider them under the headings under which they would appear if they were consolidated into a formal field order. Not all units mentioned may be with the battalion; the references cover their jobs if they are present.

As in the case of the regimental commander, the character of the battalion commander's order will differ according to the situation. If he is moving up behind a stabilized front he will have

a considerable amount of information and may be able to put on a specific maneuver; if he is moving up into a mobile situation his information will be much more vague and his plan of attack reduces to the simple form of moving forward in a handy formation, pending knowledge of the situation that will develop when his assault companies come in touch with enemy fire and movement. These conditions will be reflected in the order to his company and attached unit commanders.

Paragraph 1 contains information of the enemy and of friendly supporting troops as known to the battalion commander.

In order to understand the job of the battalion as a whole, company and attached unit commanders should have what information is available concerning enemy troops that may oppose advance of the battalion. Information of our friendly troops is of interest not only as regards those that are in front of us but also as regards those battalions that are to attack on either side of us. Friendly troops out in front may consist of cavalry or infantry. Depending on the situation, friendly infantry in front may consist of anything from troops occupying a well-developed set of trenches to a scattered, uncertain line of small groups. The information given in this paragraph may no longer be correct when the assault companies arrive on the line of departure; again, the friendly troops in front may be so scattered that it is impossible to find them.

Finally, and of utmost importance, the battalion commander must announce what aid the battalion is to receive from that powerful supporting arm, the artillery.

For example:

1. a. The enemy has organized the RAILWAY STATION. Machine guns have been located south of the southern edge of BOYERS WOODS.

   b. The 163d Infantry, 41st Division, holds the line of departure. The 26th Infantry attacks to capture the HIGHLAND FALLS TURNPIKE. The 2d Battalion, 26th Infantry, attacks on our right; the 1st Battalion, 28th Infantry, attacks on our left. Our attack will be supported by a fifteen-minute artillery bombardment, commencing at H minus 15 minutes, placed initially on hostile front

line; thereafter by successive concentrations which will be lifted when a three-star red rocket is fired.

Paragraph 2 contains the general plan of attack of the battalion commander.

The battalion commander must announce what the battalion as a whole is to do in order that the company and attached unit commanders may know what parts they have to play. If any units have been attached to the battalion they should be mentioned here.

The remainder of this paragraph sets down restrictions on the freedom of action of his company and attached unit commanders with a view to carrying out the plan of attack: the objective to be captured (or the order for an unlimited advance); the limiting lines that define the zone of action, and the compass direction of attack; the line of departure and the hour and minute at which the assault companies must start to cross that line.

For example:

This battalion, two companies in assault and one in reserve, with one platoon howitzer company, accompanying gun, one platoon light tank company, detachment of engineers, chemical platoon, attached, will attack to capture RAILWAY STATION and BOYERS WOOD to the HIGHLAND FALLS TURNPIKE. On attaining this line all units will prepare to make a further advance.

Zone of action:

Right boundary: JOHNSON — CROSSROADS 42 — RAILWAY STATION (all inclusive).

Left boundary: CORNWALL — HOOPER RUN to BOYERS WOODS — MARSHALL TAVERN (all exclusive).

Direction of attack: Seven degrees east of magnetic north.

Line of departure: BROUGHTON—north edge of woods, west of BROUGHTON—MUD RUN.

Time of attack: 5:30 a.m., 26 December, 1936.

Paragraph 3 contains the detailed instructions to company and attached unit commanders to carry out the plan of attack outlined in Paragraph 2.

What each unit is to do is announced in a separately lettered sub-

paragraph. If any unit has another unit attached to it, that fact is mentioned.

For example:

3. a. Company A, with one platoon of Company D attached, right assault company, will attack on a front of three hundred yards and capture the RAILWAY STATION. It will cover its right flank by at least one squad.

b. Company B, with one platoon of Company D attached, left assault company, will attack on a front of five hundred yards, assisting the advance of Company A, and capturing BOYERS WOODS. It will cover its left flank by at least one squad.

c. Company D, less two platoons, will support the advance of Company A by overhead fire from the HENRY HOUSE HILL.

d. The platoon, regimental howitzer company, from the HENRY HOUSE HILL, will support the attack, paying special attention to the needs of Company A.

e. The accompanying gun will support the attack from the vicinity of the FRAZIER HOUSE, paying special attention to enemy antitank weapons and armored fighting vehicles.

f. The light-tank platoon will precede the assault companies with particular attention to aiding in the capture of the RAILWAY STATION (if tanks are attached, there might be no supporting fire from the light artillery). Assembly point: ravine two hundred yards south of HENRY HOUSE.

g. Company C, reserve, will take position in rear of HENRY HOUSE HILL at 5:30 a.m. It will send out connecting groups of one section each on both flanks of the battalion. These groups will keep abreast of the assault company command posts and will keep this battalion constantly informed of the location of adjacent battalions. Company B will keep in contact with Company A by means of a connecting group of one rifle company section.

h. The engineer detachment will furnish wire-cutting details to the assault companies and a detail to aid the howitzer platoon in moving.

i. The chemical platoon will place smoke on the RAILWAY STATION from 5:30 a.m. to 5:40 a.m.

The final sub-paragraph of Paragraph 3 is lettered "x" and contains instructions applicable to the whole command which do not belong in other subparagraphs, as, for example:

k. Machine-gun, howitzer company and chemical weapon fires will lengthen three hundred yards when assault companies reach the railway line.

x. Gas masks will be worn in the alert position. Prisoners will be brought promptly to battalion command post. Front-line platoons will show panels on green caterpillar from infantry airplane.

Paragraph 4 contains instructions concerning the automatic functions of supply and evacuation.

For example:

4. a. The battalion ammunition distributing point will be near the HENRY HOUSE BARN.

b. The battalion aid station will be at the mill on CLEAR CREEK.

Paragraph 5 contains instructions concerning the automatic functions of communications.

For example:

5. a. Axis of signal communication:
Battalion: SMITH HOUSE — bridge over HOOPER RUN—JAMIESON.

b. Command posts:
Battalion: SMITH HOUSE.
(In some cases, announcement of the company command posts might be made in paragraph 5, b.)

The preceding example of an order for an attack assumes that several units have been attached to the battalion and that nearly all were given a mission at the beginning of the attack. If not all these units are present, the order would be shorter; if the situation was uncertain through lack of information, several of the attached units would be ordered merely to take an announced position, or, follow along a defined route.

An attack order given by the commanding officer, I/9th In-

fantry, is stated to have been as follows: "I assembled the officers and gave them the orders and information I had received. The following battalion orders were given. The battalion was to take over from the French, pass the night in attack formation and attack at H hour. Captain A, Company A, right assault; Lt. C, Company C, left assault; Lt. B, Company B and Lt. D, Company D, were to take the support positions; the Machine-Gun Company, I.t. E, to accompany the support line, taking advantage of cover so as to be available for organization of the final objective. The detachment from the Headquarters Company was ordered to furnish security by sending patrols to the front line and flanks. They were particularly impressed with the necessity of preventing the Germans from knowing that there were American troops in the line. All officers were ordered to prevent their men from smoking, talking or making any noise that would give away our concentration. They were further ordered to see that the men got as much rest as possible. Each company commander was allowed to study my map and make notes. The men had eaten some more of their reserve ration for supper and had refilled their canteens at nearby springs. Rain was falling but the morale of the command was high."

In a meeting engagement there would be no time to get out a formal order and the battalion commander would have to issue his order in fragmentary form, though in the order as given in this discussion there is nothing but bare essentials, and issuing orders in fragmentary messages always makes it possible that company and attached unit commanders will not have mutual knowledge of what each commander is trying to do.

Issue of the complete five-paragraph order is the ideal procedure because such an order contains the necessary and the sufficient, set out in the handiest form. But as this cannot always be done, we must be prepared to get out orders, somehow, under conditions that preclude issue of the complete five-paragraph order.

It would be a very experienced battalion commander who can issue an order in full knowledge of all the difficulties that may beset the organic units of his battalion; there may be questions from the commanders of these units concerning points that the battalion commander has omitted. If he has time, the battalion

commander may well listen to these questions, even though he may be unable to answer all of them.

As a battalion becomes war-experienced, the battalion commander can count, more and more, upon proper action by company and attached unit commanders on their own initiative. The necessity of speed in execution may require that these commanders be given great leeway in carrying on with their jobs. This does not mean that battalion combat ever becomes purely automatic—the battalion applies its power best under the will of the battalion commander.

NOTES:

1. An order for an attack at night should specify, carefully, the smaller details to be carried out. Prior to the successful night attack at Stony Point, General Wayne insured surprise by seeing to it that bayonets were fixed, muskets unloaded and by issuing the following order: "If any soldier presume to take his musket from his shoulder, attempt to fire, or begin the battle, till ordered by his proper officer, he shall instantly be put to death by the officer next him." In night operations—march or combat—the disobedience of one may cause the death of many, and failure of the operation.

2. If the battalion commander can issue his order some distance back of the line of departure he might include with it the details in connection with moving his company and attached units up toward the line of departure.

CHAPTER THIRTEEN: RECONNAISSANCE BY SUBORDINATE COMMANDERS

As in the case of the battalion commander, the company and attached unit commanders would like to make a reconnaissance of the terrain before they issue their attack orders. The same conditions that shorten the reconnaissance of the battalion commander will shorten theirs. The minimum of reconnaissance in their cases would be where the rifle company is moved toward the line of departure while an officer and some scouts push on ahead in an effort to find the line of departure and at the same time give some security to the company coming on behind. If the situation demands speed, if visibility is poor or the terrain unrecognizable, the battalion commander may have taken measures to aid the company and attached units to get into positions by using his staff and some guides. The intelligence platoon of the battalion headquarters company should be able to help.

The assault companies, in particular, must get into position so that their leading elements can cross the line of departure at the time announced in the order. If they fail to do this they cannot close up on artillery concentration or barrage or follow the tanks, thereby upsetting the battalion commander's plan of attack, to say nothing of losing the aid of the artillery fires or tanks. In the attack of September 26, 1918, in the Meuse-Argonne, it is stated that some of the battalions of a certain division failed to follow their barrage and that this failure had serious repercussions on the operations of the corps of which the division formed a part.

The rifle companies can move nearly anywhere and attack from any place. The battalion commander knows enough of the technical details of the machine-gun company and attached unit weapons to be able to assign these units a general location, but the movement of these units into position is more difficult and they require a certain amount of time to arrange details of technique in connection with their fires.

The assault companies must find any friendly troops in the vicinity of the line of departure. In one attack of the World War

French infantrymen were holding a thin line through which friendly infantry were to attack. The latter did not know that the French were in front, with the result that when the friendly infantry advanced in a fog at H hour they bayoneted these Frenchmen under the impression that they were the enemy (Chapter Twenty-two).

This discussion of the reconnaissance by company and attached unit commanders must not be taken to mean that such a reconnaissance will always be made. In the next chapter will be described a movement to the line of departure by the infantry of the 1st Division in the Meuse-Argonne in which there was probably little reconnaissance by the company and attached unit commanders. But it can be stated that these unit commanders would want to make a reconnaissance and that the details mentioned are some of those they would go into if they have time for them.

Sometimes a reconnaissance gives results that appear far from satisfactory. The commanding officer, D/16th Infantry, gives an account of his reconnaissance on the day before the beginning of the Aisne-Marne Offensive: "The guides could not speak English and as I could speak but a few words of French considerable difficulty was found in exchanging ideas. The guides had made one trip to division headquarters before being detailed as such and that trip had been made during the hours of daylight. They knew of no route to the front except by the main road through the town—and this road had been denied us for our march to the front. Off we went, down the steep hill into the darkened town—losing our way, retracing our steps, trying again and finally arriving in the battalion sector where we were to start our attack. So far the reconnaissance had confused rather than helped me in visualizing the terrain over which the company must be led during the following night. When daylight came all of the officers had arrived and we proceeded to the front line and tried to pick out some point on the terrain which might help us during the early stages of the attack. The front was a broad, gently rolling wheat field and beyond our immediate front we could see nothing on account of a morning mist. We were required to remain in the trenches as the French officers were apprehensive lest the presence of a large group of inquisitive officers might alarm the German outposts and result

in artillery fire on their positions. When I left the front line I was quite dissatisfied with the opportunity afforded to actually see the positions we were to occupy—in fact I had only a general idea of where we were supposed to go. The other officers, I found out, were no better off."

CHAPTER FOURTEEN: MOVING TO LINE OF DEPARTURE

Ludendorff states that on October 3, 1918, he received the following report on American troops from Superior Army Command C: "Their preparations for attack were often clearly recognized by our artillery, thus causing them to suffer severely from our fire."

In peace-time it is a simple matter to move troops from one place to another and get them there at a given time. As has been noted, troops entering battle are heavily burdened and far from being fresh. Even if an attack order has been issued in time to allow proper preparation, movement of units to their places is difficult, for the terrain may be unrecognizable or unmapped; there may be darkness, fog, bad weather, congested roads, no roads at all; there may be smoke, gas, bombing, enemy machine-gun and artillery fires. Ignorance of the situation combined with physical and mental fatigue adds further trouble. Simplest in a situation of long stabilization, it becomes most difficult in a highly mobile situation as then it is hard to secure accurate information promptly.

Artillery fire and the noise of airplanes have sometimes been used to smother the noise of infantry moving into place for an attack. Many of these movements will be made at night. Day or night, every effort must be made to keep the movement secret from the enemy.

Recalling that the staff officers of a century ago were charged with conducting units to their place for battle, and imagining, as it is easy to do, certain types of terrain void of landmarks of any sort, we may conclude that under this condition it may become necessary for the battalion staff actually to lead companies and attached units to their places. Flat plains like those of Texas would probably require actual guiding; movements at night or in fog or smoke will require careful supervision also.

If friendly troops are out in front of the battalion, guides from these troops may be available. However, the guides provided by troops out in front may be men who, though they have been on the ground several days, have passed the entire period in a small

hole and have little or no idea of how they reached the place. Then too, the units of the incoming battalion may take positions different from those occupied by units of the friendly troops out in front. During the World War French guides had a habit of disappearing after going a certain distance; American guides sometimes were ignorant of their jobs.

Troops out in front of the battalion may consist of anything from a mere crust to firmly established units. If such troops remain until H hour, the infantry battalion should be able to remain in rear of the line of departure and advance so as to cross the line of departure at H hour.

When a battalion attacks through other troops there results a dangerous density of troops, which sometimes results in trouble. There may be installations, such as signal equipment, to take over. All officers must supervise closely in order to obviate confusion.

On July 17-18, 1918, the 1st Division moved into position for the Aisne-Marne Offensive. The French were holding the front, and a very few officers of the infantry had been able to reconnoiter before the attack. The towns of Coeuvres, Cutry and Laversine, the roads connecting them and a bridged marsh were definite landmarks of the terrain. Despite this fairly recognizable terrain, what happened to Company H, II/28th Infantry? Due to darkness, storm, and excitement of the French guide, this company marched into Cutry, heading away from its attack position. Its error was corrected by the adjutant of the 26th Infantry and the company reached its position only just in time to follow the barrage. In this same movement the column of the III/28th Infantry was broken after passing the first-aid station at les Longues Rayes and three of the four rifle companies were lost. Runners sent out by the regimental commander found these companies and succeeded in bringing them to their attack position shortly before H hour. In the cases of both these battalions, the only map available was in the hands of the battalion commander; the supply of maps for the company commanders failed to materialize at the announced time and place.

The commanding officer, Company D, 16th Infantry, writes of the movement into position for the attack of July 18, 1918: "The roads leading toward the front were jammed, so that Company D,

in the battalion column, marched in column of twos and most of the time we were lucky to be on the road at all. Darkness came soon after the start and thunder clouds forming overhead soon blotted out even the helpful light of the stars. Then the thunder crashed, and rain fell in torrents. The road was soon a sticky, yet slippery, quagmire; packs became wet and heavy; men stumbled and fell and arose covered with mud. Flashes of lightning showed a road filled from gutter to gutter with animal-drawn vehicles, motors, tanks and numerous columns of foot troops. There was loud shouting, drivers urging their teams onward—lost columns trying to find their organizations—men cursing when wagons or trucks lost their direction and edged into them—it was a scene of the wildest confusion. The rate of march was slow, perhaps a half-mile an hour, for each man had to hold to the equipment of the man ahead to keep from being separated in the inky night. I was surprised when we halted at the division headquarters, for the march had seemed endless. The men threw themselves on the rain-soaked ground, utterly exhausted."

In a monograph produced at The Infantry School, the former operations officer of the 23d Infantry, describing the same movement, states: "The strictest march discipline was to be maintained. It was forbidden to light a cigarette. Silence and every precaution were required to keep the enemy unaware of our approach.

"The terrific electrical storm accompanied by a driving rain added to the confusion and what seemed insurmountable difficulties. The imagination can hardly be stretched enough to conceive of the situation. Nothing was visible at a pace. The men were drenched. They were forced to march in the muddy ditches beside the road. Now and then even this route was obstructed by a mule, or a truck, or a caisson, which had been shoved off the road. It was necessary to form a column of files which seriously elongated the column. To avoid being lost, each man had to catch hold of another's pack. When a break occurred in the column it had to be halted until the break closed, otherwise the end which had broken off would have been lost. It was next to impossible to find one's direction. There was a perfect network of roads. The darkness and rain prevented location by map. The only hope was to read the signposts. The battalion commanders were the only ones who knew the way; the

others had had no chance to make a reconnaissance. The lightning was about the only circumstance in favor of the struggle to get forward. This intermittent brilliance helped considerably; but for it, the situation at 4:35 a.m. would probably have been quite different. * * * Noncommissioned officers were stationed along the way as guides to help as best they could to give the troops the proper direction. * * * The men were moving on the proper routes. The French troops were sending in the most disquieting reports to the effect that our troops were lost in the woods.

"At 3:30 a.m., the sergeant-major of the I/23d Infantry reported to the regimental commander that Companies A and B of his battalion had been lost in the woods, and that he thought only a small portion of the battalion had reached the jump-off position. * * * It seemed futile that an attack would have any chance under these conditions. The regimental commander personally took charge of Companies A and B and led them to their position. A French guide had led the regimental headquarters astray, but it got back on the right path and came out of the forest at the proper time and place.

"At 3:15 a.m., the troops of the II/23d Infantry began to march in double time to get to their assault position. The French guides were insufficient and practically of no value. About 4:15 a.m., the II/23d Infantry began to run into French troops who retired. At 4:30 a.m., the battalion arrived at the jump-off line—only five minutes before it was to move off into the attack.

"The other battalions had practically the same experience in getting to their positions. Had not a very great feat been accomplished in simply getting to this fight?"

Another description of the approach march and the movement to the line of departure in the Aisne-Marne Offensive is given by the commanding officer, II/23d Infantry: "At this time the battalion commander received a written message from his colonel to proceed by marching and without delay to Carrefour de Nemours, so with full field equipment and with no food since noon the preceding day, the battalion started out. This weary march continued all day—doubtful water from streams was drunk, because the day was hot and the roads were dusty—but no food was had." That evening, at six, the battalion ate its reserve ration, which, as fires

were out of the question, consisted of raw bacon and coffee beans. At half-past nine it started its march toward the line of departure in a violent storm; forced to keep out of the fields and woods due to the existence of wire entanglements, the long single-file, in inky darkness, struggled along a road filled with vehicular traffic of all sorts. A promised supply of grenades failed to materialize, and at another point it required so much time to open the ordnance boxes in the dusk that only assault companies could be issued the extra bandoleers. At 4:00 a.m. the battalion started to double time, and at half-past four arrived at the line of departure from which it attacked five minutes later. The machine-gun company, delayed en route, joined the battalion at dusk on the following day, too late to be of any assistance.

It is sometimes impossible to secure from the regimental commander exact information concerning friendly troops out in front. He may have information that was correct some hours before but which, due to unreported changes, is no longer correct. Writing of the Marne Defensive, the commanding officer, I/30th Infantry says: "When the commander of the German I/47th Infantry crossed the bridge early in the morning, he moved out on the American side in a column of squads on the assumption that the resistance in his front had been cleared away by the 6th Grenadiers * * *. He needlessly exposed his force to the annihilating fire of one of the platoons of Company C, 30th Infantry, and was compelled to return to the north bank of the river. He had violated the principle of security and reconnaissance."

On September 30, 1918, when the 1st Division was moving into position for attack, there was infantry of the 35th Division out in front. The 35th Division had been attacking for five days with attendant casualties and resultant confusion. Information concerning its advanced elements was so vague that the commanding officer, 16th Infantry, moved his regiment up in advance-guard formation; he maintained his freedom of action by using the method we always employ when we go into the unknown.

Writing of the Meuse-Argonne Offensive, the commanding officer, I/26th Infantry, states: "The darkness of the night and the anxiety of battalion commanders to reach the line on time caused them to greatly diminish intervals and distances. Battalions

marched in narrow fronts, companies in columns of twos without distance, battalion commanders leading." Our field manuals do not discuss the battalion commander as a guide for moving his battalion into place for attack; this extract from military history shows that there have been occasions when he himself has had to perform the duties of guide.

On October 8, 1918, the II/30th Infantry had the following experience: "The battalion was about half the distance to Woods 250, when enemy artillery shells began to fall in the area of the battalion. The guide was completely lost and from here the battalion commander marched by compass to the position selected. Only one company and a half reached the destination in Woods 250 at the appointed hour. The remainder of the battalion was lost and the battalion commander immediately sent out officers' patrols to locate the other companies." They were found in time.

The History of the 82d Division states that due to failure to meet guides, the assault battalion of the 328th Infantry was some kilometers behind its line of departure at H hour on October 7, 1918.

The I/26th Infantry, moving into position for the Saint Mihiel Offensive, had to hold up, on rifles, the twenty or more wires constituting an axis of signal communication, while the entire battalion passed underneath in single file.

If the reconnaissance of the battalion commander has been sketchy and he has been able to assign only general places to his units, it may be necessary for the latter, especially the machine-gun company, to look around before they can prepare their part in the attack. The fires of machine-gun units are becoming more and more important in combat.

The battalion commander will want reports from his company and attached unit commanders when they have reached their places. Getting the units into place does not mean that the battalion commander will have all of his effectives at H hour. After the 1st Division relieved the 35th Division on October 1, 1918, its infantry suffered so severely from small-arms fire, artillery fire and gas for three days, that the casualties amounted to five hundred per day. Practically all of one company had to be evacuated on account of gas burns incurred in digging into gassed ground.

The intelligence platoon of the battalion headquarters company should be of use in getting the units into position.

NOTE:

Moving units into position in forcing a river crossing demands additional care. This is usually a night operation and, in addition, it involves the moving of troops by ferries or across bridges. As a rule, the machine guns and the infantry heavy weapons will have to go by hand. Special efforts are made to maintain secrecy: boats are padded to avoid noise of oars, shoes and equipment; men to go in boatloads may be designated ahead of time; no talking is allowed, and all other efforts are made to avoid noise and confusion. Once across the river, the units resume the normal method of moving into place. These remarks apply to the moving of the covering force as well as of the infantry battalion.

CHAPTER FIFTEEN: THE ATTACK ADVANCES

When the battalion starts the attack at H hour the battalion commander does not know the duration of his job. He may be given an objective to capture; when he gets to that objective and is prepared to fight most effectively, possibly in front of it, for holding it, he has finished that particular job and he may then be given another one. Again, he may be ordered to attack in an announced direction with no limitation placed on his length of advance. His battalion may be required to attack until its combat capacity is exhausted.

We have remarked that command, strongly centralized in higher commanders at the beginning of an attack, becomes decentralized during the course of the attack; the battalion commander, as he advances farther into the enemy, will, of necessity, have to use more initiative. Writing of the Aisne-Marne Offensive, the commanding officer, II/28th Infantry states: "A regimental commander must make his plans and preparations for an attack before it starts. Once the attack is launched, the conduct of the assaulting units is in the hands of the smaller unit commanders. The regimental commander can influence the action by the use of his reserve and supporting weapons."

In the later stages of the attack it may develop that the enemy has fallen back to strong positions that cannot be carried without a preliminary return to centralization of command in a higher commander, the bringing up of artillery and preparing of a new plan of attack by the higher commander. An example of an attack order issued under these conditions by a regimental commander is given by the commanding officer, I/9th Infantry: "About 6:00 p.m., Colonel U came up and assembled the officers. He told us that the 9th and 23d Infantry regiments were to attack again at 6:30 p.m., and that a battalion of the 5th Marines was to be attached to each regiment. He then issued the attack order as follows: Line of departure—present front line. Direction of attack—10 degrees south of east. Objective—line of Berzy-le-Sec—Taux—Hartennes, which lay about five kilometers away across the

Soissons—Château-Thierry Road. Formation for attack—2d Battalion, 5th Marines, under K, and 2d Battalion, 9th Infantry, in assault from left to right. 3d and 1st Battalions, 9th Infantry, in support from right to left. Support battalions to furnish necessary flank protection. The attack was to be supported by the 15th Field Artillery and tanks.* * * we actually went over at about 7:15 p.m. with Colonel U leading the attack in person."

The automatic functions of the battalion commander. In the attack the battalion moves away from its kitchen section, which has been turned over to the regimental commander. Water and food will be brought up occasionally though there may be much thirst and some hunger. The trips the munitions section has to make may become longer and more difficult as the battalion advances in the attack. From time to time the locations of the kitchen section and the regimental ammunition distributing point will be pushed forward.

We have already remarked that in an attack the battalion commander and his units are moving away from the source of orders; his command post, set up successively at points along the axis of signal communication assigned him in the regimental commander's attack order, moves away, jump by jump, from the regimental command post. The regimental command post will advance from time to time. The communications officer of the battalion has the personnel and material for signal communications even though the regiment fails to keep in touch with him, but casualties are likely to occur. The commanding officer, II/28th Infantry, writing of the attack of July 18, 1918, states: "Battalion headquarters followed closely behind Company H. It suffered many casualties before it reached the enemy lines. The artillery liaison officer, three or four of the first-aid men, and most of the communication personnel were killed or wounded. This was a serious blow because it left the battalion without any mechanical means of communication."

While the battalion command post advances from time to time, it is always functioning somewhere, for enough personnel and material are sent forward to set up at the new command post location before the old one is closed. Through his command post, the battalion commander is supposed to be able to communicate with his

companies and attached units, adjacent battalion command posts, the regimental command post, and by the artillery line of the artillery liaison officer, with the supporting artillery. Frequently the battalion commander is reduced to sending his messages by runners who may lose their way or become casualties. Experienced runners develop remarkable ability in finding units even during total darkness. The commanding officer, III/26th Infantry, writes of the day of October 10, 1918: "We became apprehensive of enemy in our rear since our telephone line guards had met several strong patrols well in behind us."

In advancing through a thickly wooded region it is essential that communication be maintained between adjacent assault battalions; troops in woods are very sensitive about their flanks because they cannot see very far. If troops are heard at a flank, and their identity is not known, unfortunate incidents may occur. An Infantry School monograph describing the attack of the I/309th Infantry on the Bois des Loges on October 19, 1918, states: "The woods were so thick with underbrush that it was impossible in many cases to see more than a few yards in any direction. Casualties were heavy. Many companies were without officers. Unit commanders lost contact with elements of their command. Control became impossible. The supports had mingled with the assault waves. The fighting resolved itself into a series of hand-to-hand conflicts between small groups.

"Reports were received that certain groups had fought their way to the northern edge of the woods. It was necessary to support them at once if the ground was to be held. By the time a group of men could be called under one leader the enemy had infiltrated behind these groups and it was necessary for them to fight their way out to avoid capture. It was clearly seen that nothing was to be gained if the present tactics were to be pursued. Measures were taken to reform all available men along the first trail crossing the woods from east to west. While reforming for another advance it was reported that the enemy was forming for a counterattack, believing that the battalion was pulling out of the woods. The mortars were brought up and shelled the area where this attack was said to be forming. This was done at a considerable risk to themselves and the troops near them as it was more or less of a gamble

whether or not the projectiles would strike the limbs of nearby trees and explode in our midst. The counterattack did not materialize and the attack went forward again. Little by little a few yards were gained at great sacrifice. By mid-afternoon the battalion gained the second trail. It was possible to do this only by careful mopping up and the willingness to be content with relatively small gains. Just before darkness the battalion had reached the third trail and it was decided to dig in and consolidate the ground captured so as to be in position to jump off again in the morning." It is regrettable to have to add that due to failure of adjacent units to capture Champigneulle, seven hundred yards to the east of the Bois des Loges, the Bois was given up during the night.

Writing of the mobile situation of November 6, 1918, in the Meuse-Argonne Offensive, the plans and training officer of the 18th Infantry states: "The battalion commander had with him only his adjutant and runners from each company and regimental headquarters. During the approach march he advanced along the road abreast of the support platoons of the assault companies; during the attack his position was just in advance of the reserve companies. No difficulty was experienced in communicating with the companies and the regimental commander. Runners and arm signals were the only means of communication used. No elaborate message center was established, nor was one needed." It should be remarked, here, that the operation described was in the nature of a pursuit.

Concerning signal communications during the Aisne-Marne Offensive, the operations officer of the 23d Infantry writes: "Communications broke down from front to rear, especially in the higher echelons. The division order for the second attack took five hours to get to the battalion, as an example. Little information came from the troops in line, but less, or none, found its way forward from the division and brigade headquarters. Just a word about the general situation, some praise, or anything would have helped to raise the confidence of assault units. Liaison with the artillery, after the opening stages, didn't contribute to any practical results.

"Due to the breaking down of communications and the inevitable confusion which will always exist in such a battle, the fight

was in the hands of the company officers, little influence being exercised by higher commanders after it was once launched. The regimental commander found it necessary personally to control the second attack.

"Artillery support in the initial stages of the attack was excellent, but in the latter stages it broke down from lack of communications. When it existed, the barrage was followed very closely, and this no doubt contributed largely to the success of the early stages."

During the Meuse-Argonne Offensive, a colonel sent a written message to a major whom he could see; the written message reached the major thirty-seven hours after it was sent. Other means of communication had transmitted the message in the meantime.

The infantry airplane will try to keep higher commanders informed of the location of the infantry battalion.

The intelligence functions of the battalion commander. On October 3, 1918, Ludendorff received the following report: "In the course of attacks, American units were quickly thrown into disorder." If intelligence can prevent surprise it will be of great aid.

The modern battlefield is singularly empty. A British infantry officer, present in eleven battles of the Boer War, has stated that he never saw a Boer enemy. A company officer of the 42d Division has stated that, exclusive of prisoners, he saw only fifteen or twenty live enemy during his long service at the front. The infantry airplane may help to show us where the enemy is by firing on him or by dropping messages for the battalion commander. Adjacent battalions and higher commanders may furnish useful information. The battalion commander may be able to see something of the terrain of attack from the observation posts that are established in succession as the battalion advances.

Questioning prisoners may give information concerning enemy dispositions in front of the battalion. Prisoners and their papers must be hurriedly examined, then sent back to the regimental commander (Chapter Thirty-one, Section III). It is most important that identification of enemy units and the character of the enemy reactions be reported promptly to higher commanders; the battalion commander's combat experiences are deep, but they are not much broader, so to speak, than his zone of action. Information that he

sends back may seem mere routine to the battalion commander, but it may be invaluable to the higher commanders.

As the battalion advances the enemy opens fire with his weapons, which may or may not be in trenches; the intelligence officer, using his intelligence platoon, endeavors to determine where enemy weapons are placed. Not only the front but also the rear must be watched. The commanding officer, II/28th Infantry, writes of the Aisne-Marne Offensive: "* * * many Germans, who had hidden themselves in beet piles and small underground shelters, were not located by our men. As soon as our lines passed, the Germans would come out of their shelters and open fire from the rear." In the Argonne Forest German snipers fired from trees. In an Infantry School monograph, an officer of the 106th Infantry states: "All units in this attack showed a thorough appreciation of the need for flank protection, mopping up, and contact with adjacent troops. This knowledge had been paid for most dearly at the Hindenburg line a few weeks before."

Writing of the advance of the 77th Division through the Argonne Forest, the division commander states: "Wire was encountered every few hundred yards in belts frequently more than a hundred meters wide, and, no sooner was one of these obstacles overcome than another was to be faced. It was a never-ending task and every one of these wired positions was stoutly defended. Another enemy expedient was to suspend wire netting ("chicken wire") on the trunks of the trees and bushes. The undergrowth was so thick that this was not observable until the troops were in contact with it, and the wire was always backed up by groups of cleverly placed machine guns. The enemy's methods were simple but effective. The troops, coming up against the wire, would be fired on by the most advanced guns, others, further to the rear, remaining silent for the moment. The wire cut and the troops extending in an effort to envelop the nest in action, the other guns would open as soon as the envelopment had progressed far enough to present a flank to their fire. Hidden as they were in the dense underbrush they were not discoverable until their fire opened. Our consequent losses were heavy. From personal observation I am convinced that our losses in the Forest were not less than ten for every one we were lucky enough to inflict on the

enemy. His machine gunners were at liberty to continue their fire until the last possible moment. Then they could disappear instantly in the thick underbrush around them and if one happened to be hit it was purely a matter of luck."[1]

If small wooded areas have to be traversed during the advance, there must be no pause at the edges to change attack formations; any pauses necessary must be made after a foothold has been gained in the wood, or before emerging from the wood into the open. Edges of woods, being handy targets for the enemy, are dangerous places at which to halt large numbers of troops.

The battalion commander must send back such information of the enemy as he gains to the regimental commander, and also keep him informed of the location of his assault companies and what he intends to do. Exact details of time and place must be given.

The operations functions of the battalion commander. Despite improvements in observation and communications, tactical surprise is attainable, even in broad daylight. If there is no artillery bombardment, or if tanks are used instead of the fires of artillery, the attack may be a surprise if the battalion has been careful in moving to the line of departure. But secrecy disappears when the assault companies move forward and now speed must be sought; this speed of the infantry is closely related to the fires of artillery if they are used. A barrage ties the assault companies to it; concentrations, if they can be handled promptly, speed up an attack.

Let us consider our battalion as it leaves the line of departure. If the fire provided by the artillery is a rolling barrage, we want the assault companies to follow it as closely as is safe; if the fire is a concentration on an area not far from our line of departure, we want the assault units concerned to get there, hug the concentration, and assault the moment it lifts to some other area. Both these desirable results are attained if the assault companies leave the announced line of departure at the exact H hour: this is one of the reasons for announcing the line and the hour; the proper working of the infantry-artillery team depends upon *place and time*. It is of record that two American divisions lost their initial rolling barrages during the Meuse-Argonne Offensive. An

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[1] From Major General Robert Alexander's *Memories of the World War*. By permission of The Macmillan Company, publishers.

account of the attack of the 27th Division on October 17, 1918, states: "In this part of the sector the assault met its first determined resistance from the railroad embankment east of St. Souplet. Here heavy machine-gun and small rifle groups delayed the advance so that by the time the embankment had been climbed and this position reduced, the barrage was well in advance. This allowed several machine guns from positions in hedges and folds of the ground to inflict a number of casualties."

Another reason for promptly advancing at the right time from the line of departure is that it may enable us to get all or most of our battalion into the enemy position before their artillery defensive barrage falls in front of it. A powerful enemy barrage is dangerous, for, writing of the attack on July 18, 1918, the commanding officer, II/28th Infantry, states: "The support companies moved forward (ten minutes after the assault companies had advanced) and passed through the German barrage, which was falling on our old front lines * * *. Both companies suffered heavily from this barrage. The company commander and one lieutenant of Company F were killed and the company was so badly disorganized that a halt and reorganization of it became necessary as soon as it passed our old front line. This halt and reorganization delayed the company considerably and it did not rejoin the assaulting companies until the first objective had been reached." In the attack of the famous French 42d Division on August 8, 1918, the infantry, silently and undiscovered, pushed forward to a distance of only two hundred yards from the German trenches some time before H hour. At H plus one minute the infantry, protected by a rolling barrage, moved forward and attained a line several hundred yards farther forward. In this advanced position the French infantry was inside the German artillery defensive barrages, which fell in rear of the French infantry. Such Germans as had been in their forward trenches had been killed by the French rolling barrage.

General von Gallwitz, who opposed our First Army in the Argonne, writes: "Along a front of six kilometers' length, American infantry, in deep formation supported by tanks, charged from Banthéville Wood, the village of Banthéville, Rappes Wood and the little forest southwest of Cléry-le-Grand. Under our annihilat-

ing fire, their attack, for the most part, was prevented from developing properly. As soon as the foremost tank was shot to pieces, the other tanks faced about, as did the infantry, returning to their jump-off line after suffering extreme casualties. Somehow, this whole demonstration appeared to us as if the enemy had been mistaken in regard to the location of our front line. He had charged so unconcernedly right into our machine-gun fire!" This account is given with all due reservations as to its accuracy. If correct, it would lead us to believe that the failure of this attack was not due entirely to the battalion commanders concerned or to the commanders of the tank units.

Infantry does not always attack at dawn. Attacks made during daylight may require the battalion and attached units to go forward in fog or smoke. Fog and smoke lift and lower; they both have the advantage of enabling the assault companies to come to grenades and bayonets with the enemy without advancing long distances exposed to the observed fires of enemy automatic weapons. It is safe to say that the compass is the only reliable guide under these conditions; even with them, tanks and other troops will manifest a tendency to follow ravines irrespective of their direction and forgetful of the enemy's arrangements for firing down such ravines. A road leading in the general direction of attack will attract groups to it with the result that instead of a line of groups advancing toward the enemy, we have a column of groups on the road. It is the human failing of following the line of least resistance. Under fire, inexperienced men manifest the sheep-like characteristic of herding together; presence of comrades brings mental relief but actually involves additional danger.

With reference to the attack of the American II Corps on the Hindenburg line on September 29, 1918, an Infantry School monograph states: "The morning was foggy and this, added to the smoke of battle, made it impossible to see more than a few feet in any direction. Infantry and tanks experienced great difficulty in maintaining direction and contact. Units became separated so that the battle resolved itself into many small fights carried on by mixed groups. In this respect the fog was a great hindrance; on the other hand it does not seem possible that the position could have been taken on a clear day." Needless to say, the Hinden-

burg Line, in front of Bellicourt, was very highly organized for defense. It is experiences such as these that strongly suggest that man-made smoke may be a necessity in future attacks against highly-organized positions. Such use of smoke, of course, would have to involve a zone of action much wider than that of a battalion of infantry.

Leaving terrain and atmospheric conditions, let us examine into the restrictions regarding space placed upon the battalion commander by the regimental commander. As we have seen, he may have been given an objective or he may have been given a zone of action. In either case he has been given a compass direction of attack.

The battalion commander will be fortunate if the compass bearing of the attack remains the same throughout the attack. In the attack of the 2d Division on July 18, 1918, there was a sharp change in the direction of attack after the first objective had been taken. It is stated that due to this change of direction two companies of the II/5th Marines crossed the adjacent zone of action of the 1st Moroccan Division and got in touch with the right units of the 1st Division on the left of the Moroccans. Writing of this same attack, the former operations officer of the 23d Infantry states: "The change of direction of the attack caused confusion and was a most difficult maneuver to execute under fire. It is believed that it would have been better if the support battalion had leap-frogged the assault battalion at this point."

Even though officers are well provided with maps it is difficult to determine the limits of a zone of action. France is a country of many natural and artificial landmarks but companies and battalions of our forces frequently went astray. In flat, featureless or unmapped terrain we shall probably have to make less use of zones of action and more use of carefully calculated and followed compass directions; this means that the battalion commander will have a job in giving his units a correct start.

The job of the battalion commander is to have his battalion attack to capture a definite objective or to advance in a given direction without any immediate restrictions on the depth of his advance. He is responsible that it does so. If an assault company

goes astray the battalion commander may have to replace it by a reserve company, then try to find the missing company.

We have seen that during the Meuse-Argonne Offensive some battalion commanders found it necessary to personally lead their battalions to the line of departure, experienced as were the company and attached unit commanders. We may conclude that the commander of a battalion that is attacking for the first time at the beginning of a war would be present to see that his companies and attached units are in place and ready to advance under the best conditions. The existence of command posts does not imply that the battalion commander will not exercise the supervision that is required of all leaders. This is particularly true at the beginning of a war, for the battalion commander knows little of the conditions that will exist, and less of how his unit commanders will act under fire. We find an illustration of what can happen in the account of a regimental commander during the Meuse-Argonne Offensive: a rapid advance, including the leap-frogging of the assault battalion by the support battalion, was to be made in a dense fog. Leaving his command post shortly after the start, this regimental commander pushed on with the support battalion, finding that the assault battalion had disappeared. Shortly after this discovery the assault battalion appeared from the rear of the support battalion.

With reference to the first day of attack on September 26, 1918, the *History of the 28th Division* states: "In the advance, the right of the line pushed forward rapidly after getting started, but the left turned too far to the left and was lost in the Argonne Forest, where it met machine-gun opposition and made very slow progress."

It must be stressed that senior commanders are not to go down and command the smaller units, but they and their staffs should keep a watchful eye on things, particularly at the beginning of a war. For American officers the World War holds lessons on this point. The units of the earlier divisions to arrive in France received slow and careful instruction with French units in training areas and quiet sectors, and their later entries into action were well-handled; divisions that arrived later, of necessity, went into the Meuse-Argonne Offensive without any preliminary baptism of

fire, and their gallantry did not always compensate for the errors they sometimes made. If both French and German battalions went astray in 1914 we may logically conclude that it will not be out of place to watch our American battalion units at the opening of a war. Later, these war-experienced battalions will be smooth-running machines, and such close personal supervision will not be necessary. We are usually present when our children make their first attempts to walk alone.

As the infantry battalion advances it moves away from its supporting light artillery. The latter advances by single batteries in order to insure that at least one battery is always available to answer calls from the infantry battalion. The infantry battalion commander has two chances of communicating his needs to the artillery: through the infantry regimental commander and through the artillery liaison officer attached to the infantry battalion. Later in the attack he may be in a situation in which his artillery support will be far less effective than it was at the start of the attack.

The infantry battalion sometimes runs away from its supporting artillery; if it does this it is evident that artillery support has not been needed, but the battalion commander must remember that danger lurks ahead. Under conditions approaching those of a mobile situation, batteries or larger units of light artillery may be placed at the call of the infantry battalion commanders with the object of improving the infantry-artillery teamwork.

So far in this chapter we have looked at our advancing troops; we must remember that a small but appreciable number of them are quietly drifting to the rear. They will go back to look for ammunition, water, food; accompany a prisoner or a wounded man who is able to walk. Lieutenant Generals Liggett and Bullard mention this straggling in their books on the World War. In the October fighting in the Meuse-Argonne the 1st Division placed a line of infantry first sergeants across the zones of action of its units. This line moved along even with the command posts of the assault battalions and promptly returned stragglers to their units. Men can become honestly lost in woods, and woods facilitate skulking. Describing the conditions back of an attacking battalion, Major General Buck writes: "My aide and I then went forward on foot over the open ground toward my 26th Infantry

then engaged in the attack on Berzy-le-Sec. We encountered numerous stragglers drifting to the rear. I halted these men, many of them mere boys, and inquired where they were going. With tears running down their cheeks some of them said they were going to the rear because they had been gassed. Others said their officers had sent them for ammunition, while still others said they were sent for water for the men in the firing line. Many groups of three were encountered of which one was wounded and two were helping him to the rear. These and various other excuses were offered.

"I halted all these men and formed most of them into groups. There were several noncommissioned officers among them. These I put in charge of the groups and sent them back to the front. In some way I got hold of a lieutenant who was hysterical when I beckoned him to me. He claimed that the 26th Infantry company to which he belonged had reached a clump of trees in the deep valley below Berzy-le-Sec and, as near as I could make out, opposite Aconin Farm, that the company had been shot to pieces and that he was going for reinforcements. I put him to work helping me gather in the stragglers and pretty soon he was all right again and finally, when we had about thirty men assembled in this group I put him in charge and sent them all back to report to his captain."[1]

The commander of a battalion that came out of action with two officers and sixty-eight men, writes as follows: "It is a peculiar thing but a fact, and probably a not unusual experience, that the sixty-eight men had now increased to about one hundred and forty. Before the march to the Bar-le-Duc area, where we were to recuperate, was continued in trucks during the afternoon after we had been relieved, the strength of the battalion reached two hundred and forty. Our increase was due to the men who had miraculously and suddenly discovered which way was north and had, therefore, found their proper organization. Some of them had, undoubtedly, been lost but most of them could be well characterized, as they were by the soldiers who had fought through the battle—'shell-hole rats.' It may as well be taken into the consideration of

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[1]From *Memories of Peace and War*, by Major General Beaumont B. Buck, United States Army, Retired. By permission of The Naylor Company, publishers, San Antonio, Texas.

all officers who may be called upon to lead troops in battle that there will always be a certain number of these men who become conveniently lost, and as conveniently find themselves when the show is over."

There is another danger toward the rear; enemy elements that have not been cleaned up. Sometimes the commander of an assault battalion will have rifle units from a reserve battalion attached to his assault battalion in order to take care of this enemy activity, which may take on dangerous proportions as it did in one case with our 27th Division.

The air also has to be watched. Enemy airplane attacks are only a few seconds in duration, rifle units are usually deployed and only such machine guns as are set up, favorably mounted and sited, can fire on the attacking airplanes.

There is much mixing of units in the later stages of an attack. The plans and training officer of the 18th Infantry states that toward the end of the Aisne-Marne Offensive, men of different battalions were formed into groups under noncommissioned officers, and that one of these groups in his zone of action was composed of a number of Moroccans from the adjacent French division. He adds that the regimental staff officers were able to assist in assembling these groups.

Let us go back to our advancing battalion. The assault companies advance, making use of their organic and attached units (if any) and it may be that they themselves can do the job. The remainder of the battalion units perform their part in the plan of attack—firing, or advancing—all under the supervision, if not the eye, of the battalion commander. As his machine-gun company, his infantry heavy weapons and his reserves are toward the rear of his formation, he can feel pretty well balanced in his forward steps; even an unexpected counterattack by the enemy will find him well braced against it.

NOTE:

It is difficult to keep the infantry heavy weapons supplied with ammunition during an attack. This is particularly true of the heavy shells for the 3-inch trench mortar. Cases are known in which machine-gun companies were unable to keep up with the rifle companies of their battalion.

CHAPTER SIXTEEN: RESISTANCE OF THE ENEMY

With proper preparation the initial attack of the infantry battalion is not infrequently successful, sometimes with few losses. However, sooner or later during the course of the attack, the battalion commander will find that his assault companies will pause. There is nothing abnormal in such a pause; given the presence of an enemy it is only to be expected.

This pause does not mean that the commanders of the assault companies have reached the limit of their ability to apply power. These assault companies, exposed to the enemy fire, may have to work forward very slowly; their platoons, sections and squads advance as they can in combination with one another, employing alternations of fire and movement. Local assaults by these small units may suffice to dislodge the enemy. Changes in the fire of machine-gun units supporting the assault companies may better neutralize the enemy fire, thereby enabling the assault companies to get forward. Also, our battalion is not the only battalion in the attack, the adjacent battalions may be getting forward in such a manner as will enable our own assault companies to speed their own advance.

The assault companies have powerful means of action, perhaps have an attached platoon of the machine-gun company and, until found wanting, the commanders of these companies must be credited with the ability to use these means. When the assault companies cannot advance farther through use of their own means, the battalion commander is set a definite problem which he must solve either by means of the powers within his battalion, or by these powers aided by help from adjacent battalions, the supporting units, or both. If his assault companies are prevented from further advance by intersecting bands of enemy machine-gun fire he may be sure that he has run into something serious.

During a pause the battalion commander gathers the information that may ultimately establish a new problem quite definitely He will realize that command has become decentralized and that his

initiative is likely to be called upon to a greater extent. If, during the crystallizing of this new problem, his assault companies are able to get forward, or the adjacent battalions take such action as forces the enemy to withdraw from in front of his assault companies, the problem disappears and his assault companies continue the advance. But the battalion commander cannot always sit down and allow time to do his work for him. It may be that encouragement and advice will help his assault company commanders. At all events, he will inform himself of what is happening, going up to observe if he deems it advisable.

If the battalion commander has advanced his units in such a way as to maintain his freedom of action to apply power he will not be caught unaware by the resistance of the enemy. He will have units (machine-gun, infantry heavy weapon and reserve) arranged in depth so that they will be able to move to such positions as will enable him to use their powers to crush the enemy resistance and carry on with the attack. It is seldom that every unit in a battalion is pinned to the ground by enemy fire, though such a condition may arise in the later stages of attacks when the battalion has suffered heavy casualties and its strength has been largely sucked in by the assault units. Writing of the Meuse-Argonne Offensive on October 10, the commanding officer, I/30th Infantry, states: "* * * the 1st Battalion reached a point about five hundred meters north of the woods, where the attack was stopped by heavy rifle fire, machine-gun and one-pounder fire from both flanks and the high ground to the front. The men sought holes in the ground for cover. The fire of the enemy was so terrific and the area was so thoroughly covered that any movement of troops would be suicidal. It was now evident that it was useless to attempt any further advance of this battalion with the enemy machine guns from the flanks pinning the men to the ground."

What happened in the assault companies during the attack of the I/30th Infantry on October 10, 1918, is told as follows: "At exactly seven o'clock by my watch I stepped out and gave the signal to advance—a loud blast on my whistle. Everything had been very quiet up until then but that signal certainly started the day's activities with a vengeance. The men of the first wave stepped bravely out, our artillery fire came down with a terrible crash

and the enemy opened up with everything he had—rifles, machine guns, one-pounders and mortars. Our artillery fire apparently did not bother them at all. What had been extremely quiet just a few seconds before was now an inferno. The enemy fire was terrific from both flanks and the front. The ground was absolutely open although it had been churned by artillery fire, and the going was pretty rough. The most lasting impression I have of that time was the absolute calm with which the men advanced. There was no shouting—no running about—just a slow, steady advance through that terrific fire. It apparently didn't occur to anyone to take cover in a shell hole. Signals or orders would have been useless even had it been necessary to give any. It seemed that every man was concerned only with reaching the enemy line. I don't think it even occurred to anyone to fall back into the wood for cover. The casualties, of course, were enormous. I've often thought what a beautiful target we must have made for the enemy machine gunners.

"After the advance had gone about four hundred yards the right half of the line veered off to the right until it faced almost in the direction of the Cunel-Nantillois road (parallel to the direction of attack). The remainder of the line reached a small fold in the ground about two hundred fifty yards south of the enemy line where there was a little cover and stopped there. By that time the right half of the line had stopped and the whole line had taken what cover could be found in nearby shell holes.

"I crawled up to the right of the line with the idea of changing their direction to the north and trying to advance by squad rushes. Our artillery fire had stopped and the enemy fire slackened considerably as soon as our men had taken cover although the slightest movement called forth enemy fire. It was quite evident now that any further attempt to advance without fire was useless. I remembered what I had been taught about fire and movement and determined that I would bring a little fire of my own to bear on the enemy. Then it suddenly dawned on me that I hadn't seen any of the enemy. I couldn't point out any targets because there weren't any. The approximate line of the enemy trench could be seen but that was all. Most of their fire seemed to come from the

flanks. But, try as I might, I was never able to determine even approximately where from.

"Suddenly the enemy opened up again with everything they had and, looking around, I saw our second wave emerging from the woods. However, the fire was so intense that they could make no headway and they soon fell back to the woods for cover.

"We remained in that position throughout the day. We would have liked to have gone forward or even back, but either was impossible. I crawled or scrambled to various parts of the line and had other men move around so as to draw fire, hoping to locate a target, but I never once saw even a rifleman.

"At dark we were ordered to withdraw to the Bois de Cunel as our artillery was again going to bombard the enemy position for another attack that night. The attack was launched that night by the 2d Battalion and the position taken."

The author of this monograph, a company commander of the I/30th Infantry, draws the following lessons from his experiences in the attack on that day:

"1. A frontal attack, without powerful artillery support or help from the flank, over open ground in broad daylight against an enemy position well intrenched, flanked by machine guns and supported by auxiliary weapons is almost sure to meet with failure and a terrific loss of life.

"2. An enemy will take every advantage of cover and usually offers a very poor or no target at all for rifle fire. In other words, troops should be taught that the enemy will rarely offer as distinct a target as they fire upon in combat exercises."

Let us assume that the assault companies have been brought to a pause and that the battalion commander becomes convinced that he will have to apply the powers of fire and movement of the units not already engaged. This conviction means that the orders under which his units have been advancing are no longer workable and that something else must be done. We shall carry on with this situation in the next chapter.

CHAPTER SEVENTEEN: PREPARING AND MAKING THE ASSAULT

In the preceding chapter we left the battalion commander in his zone of action, his assault companies unable to advance by their own efforts, himself confronted with the necessity for a new decision and a new order.

The first thought of the average battalion commander is to call for the powerful support of the artillery. There will be many situations in which artillery fire will not be available. If the assault companies have lost their barrage it cannot readily be called back; if the fires consist of successive concentrations it might require considerable time to secure one. In France it was possible to look at the terrain, then at the map, and ask that a concentration be placed on the knoll so many meters southeast of such-and-such a point. Under those conditions results could be prompt and accurate. But an enemy can quickly establish a defensive position consisting of automatic arms placed in shell holes or behind small bushes. If the terrain is unmapped or unrecognizable, how can the infantry battalion commander call down concentrations on areas that he himself is at a loss to describe? In a situation like this the accompanying gun may be helpful if animals or motors have kept it up within call. If they are with the battalion, and the situation warrants it, tanks could be used. There will be cases when the aid of artillery will have to be waited for, but an infantry commander who always calls for artillery aid would tend toward reducing the rate of advance of his battalion to the rate of advance of an auxiliary arm. It is probable that his seniors would not consider him a good battalion commander.

In any event, the job of the battalion commander is to get on as far as he can with his own means before calling for help. He must decide on the same old element of "how." And now he will find that command has decentralized largely into his own hands; the restrictions that the regimental commander placed upon him disappear to a considerable extent and he finds himself left very much to his own devices.

What is the problem of the battalion commander? What are the resistances of the enemy? If we study these thoroughly in connection with the terrain we shall be able to build up a plan of attack that will overcome them.

As regards width, the resistance may be on a position lying entirely within our zone of action, it may straddle the limit between the zone of action of our battalion and that of an adjacent battalion, or again, it may stretch entirely across our zone of action into the zones of action of adjacent battalions. The manner in which the enemy has organized it may vary from automatic weapons placed in depressions, shell holes or behind bushes to well-dug trenches protected by bands of wire. This enemy resistance will be based upon employment of the crossed fires of automatic weapons and it may be strengthened further by defensive fires of his artillery. The automatic weapons of the defense are usually the principal resistance to the advance of attacking troops. During the World War the automatic weapons that prevented advance of a battalion in its zone of action frequently were located outside of that zone. With increases in range, rapidity of fire and number of the enemy's automatic weapons, the problem of locating them and putting them out of action will become increasingly difficult; our infantry heavy weapons and the accompanying gun will have to act against enemy machine guns that lie outside of our battalion zone of action.

The lessons of the World War show clearly that men cannot "attack material" without unjustifiable loss. The presence of an enemy position strongly protected by unbreached bands of wire and bristling with automatic weapons should give the commander of an attacking battalion food for thought, for the weapons of the organic units of a battalion are unable to breach bands of wire. Should he find a situation of this sort the battalion commander will at once begin to think of the aid of supporting artillery or of armored fighting vehicles. Why? Because in order to assault and capture the enemy position, the assault companies of the battalion must be able, without undue loss, to advance on the enemy and come to grenades and bayonets with him. That, in turn, requires that the enemy be made powerless to operate his weapons while the assault companies advance against him. This requirement may

be fulfilled by effective use of the machine gun, the infantry heavy weapons, the accompanying gun, but these weapons are of no avail against well-made, unbreached bands of wire. Should the battalion commander ascertain that the enemy is well wired in, he might reasonably conclude that the existence of this well-organized enemy position had been overlooked by the higher commanders; he certainly would report such a condition to his regimental commander. The higher commanders, having artillery fires and armored fighting vehicles at their disposal, are prepared to give aid to the battalion commander in such a situation.

The situation suggested in the preceding paragraph may arise if the enemy has established á second position so far back of his first position that our artillery has been unable to act upon it. In such a case command would again centralize in the higher commanders, who would issue new orders embodying the action of the artillery and armored fighting vehicles necessary to crush the stout enemy resistance.

However, enemy resistances are not always as well organized as all that, and proper intelligence should prevent the battalion commander from being surprised by such a situation. In many cases the battalion commander will find a situation which he can take care of with his company and attached units.

Let us assume that the battalion commander considers that he can get along without calling for help and, during his reconnaissance, builds up his plan of attack. The means at the disposal of the battalion commander will be his assault companies (which may be partly or wholly pinned to the ground), any unengaged rifle companies, his machine-gun company and his attached units.

The battalion commander must use his unengaged units that produce fire to open up on the enemy elements that have held up the assault companies and, after this fire and in conjunction with it, use his units that act by fire and movement (his rifle companies) to come to grenades and bayonets with the enemy. Putting only his fire units into action sometimes will be sufficient to destroy and cow enough of the enemy to enable the assault companies to get forward and, aided by their assault fire, go in with the grenade and the bayonet. This will require close observation and lifting or cessation of the fires of the machine-gun company and the in-

fantry heavy weapons. A definite period of fire announced in the battalion commander's order, ceasing at an announced minute, or on a signal, followed *immediately* by an advance of the assault companies using assault fire, will be necessary. Sometimes it will be necessary for the battalion commander to put his reserve company into the assault. A flanking movement of some unengaged unit may be practicable; it may be necessary to use the reserve company in such a movement. These plans of attack depend so much upon the character of the terrain, the enemy and the abilities of the commanders of companies and attached units that we can do little more than bring out certain principles and cite some examples. Generally speaking, if the enemy has given way in one particular place, that place is where the battalion commander may well apply more power; he can "put strength against weakness." If this pressure can be applied against a flank of the enemy, so much the better.

But the assault companies must always be ready to advance under their own assault fire, *because,* whether artillery or infantry weapons have prepared the assault, *there always comes a time when these fires must cease in order not to cause casualties in the assault companies as they make the assault. From the time the supporting fire lifts, the assault companies are on their own until they have cleared the enemy from his position.* How long a distance the rifle company may have to advance by use of its assault fire depends on the lay of the ground, the skill of the machine-gun and infantry heavy weapon units and the experience of the leaders of the units of the assault companies. It may be in hundreds of yards and during that distance the assault fire alone may have to be depended on to keep down the automatic weapon fire of the defense. All of this serves to point the problem of the battalion commander (Chapter Three, Section I). If the rifle units can approach the enemy closely they can make the assault at a run and without making use of assault fire.

When the battalion commander has decided upon his plan of attack his decision is crystallized and he announces it in an order. Here again the thought of a battalion commander issuing even the first three paragraphs of a formal order to his assembled officers may excite impatience. The battalion commander would like to

do so and his company and attached unit commanders would like to be able to study what they have to do. Such a desirable procedure is frequently impracticable. An assault, however, costs the lives of men; the orders for it must be clearly understood. The noise of battle sometimes is so great that it precludes the giving of oral orders.

Should the battalion commander conclude that artillery fires must be used it will require more time for him to prepare the assault. He will have to arrange with the artillery where and when the fires are to be placed and how long they are to continue. Furthermore, he must inform his organic and attached units of the hour and minute, or the signal, at which the fires will be lifted so that the assault companies can make the assault.

An Infantry School monograph shows the possibilities of artillery support: "When our artillery stopped firing the battalion commander sent patrols forward and it was not long until the battalion had advanced north of the Exermont ravine * * *. Three abandoned enemy machine guns and four dead Germans were found lying at their guns when we passed the position. Artillery fire seemed to have done its work." This extract illustrates the quality of the infantry-artillery teamwork of the 1st Division in the Meuse-Argonne Operations; in the particular case considered the rifle companies did not have to assault.

Let us take an example from the Aisne-Marne Offensive of July 18, as told by the commanding officer, II/28th Infantry: "The assault companies continued their advance, following the barrage closely, until they reached a position about two hundred meters west of the Râperie and the enemy's line of resistance. At this point, they met with heavy rifle and machine-gun fire, most of it coming from the Râperie, which pinned them to the ground. On account of the level ground, the support platoons of both companies were forced to take cover from the enemy fire being directed at the assault lines. Something had to be done quickly to relieve this situation, as the barrage paused only fifteen minutes in front of the first objective. The support companies were not within supporting distance at this time and the only troops which were available for maneuver were the scout platoon of the battalion. This platoon was composed of one lieutenant and thirty-five enlisted

men. The men were all expert shots and had been selected on account of their good shooting ability and former bravery in action. The scout lieutenant was ordered to attack the Râperie with his platoon. Two squads of the platoon opened fire on it from the front and the other two squads were maneuvered to a position on the flank from which enfilade fire could be delivered on it. As soon as fire was opened by the squads on the left flank, the two in front led by the lieutenant, charged the enemy. One platoon of Company H, led by its lieutenant, joined this charge. Both lieutenants were severely wounded as they were about to close with the enemy; but the men, inspired by their leaders, continued the charge and succeeded in capturing the position. Five heavy machine guns and about one hundred prisoners were captured in and around this strongpoint. The enemy's casualties had been very heavy on account of the accurate shooting of our men. The capture of the Râperie lessened the fire on our assault companies and the advance was continued, the men firing from the shoulder as they moved forward in the high wheat."

From the preceding extract we visualize the situation of the commanding officer, II/28th Infantry, to wit: assault companies pinned to the ground, reserve companies not on hand, only available reserve the scout platoon of thirty-five men. As we have seen, his communications platoon had previously been practically destroyed and, as he tells us later in his narrative, his machine-gun company did not get up even in time for the later attack on the Missy-aux-Bois ravine. But the power of fire and movement available to the battalion commander in his scout platoon was sufficient to carry the Râperie, thereby enabling the assault companies to advance. The five-paragraph order reduced to an oral order to the scout lieutenant. In this instance it was sufficient.

So far in this discussion we have assumed that the enemy resistance has been located entirely within the zone of action of our battalion, making it a family affair, so to speak. But we shall find enemy resistance located squarely astride the limit of the zone of action between our battalion and the adjacent one. Limiting lines of zones of action are to help in battle, not to hinder. It is sometimes necessary to step across the line into the battalion zone of action to the right or the left in order to accomplish the

mission of our battalion in our own zone. Also, when an enemy resistance involves two battalion zones of action, a concerted assault of the two battalions can be arranged. Theory argues that the regimental commander is well fitted to plan such an assault, but the two battalion commanders can arrange it if need be. The commanding officer, II/28th Infantry, writes of the Aisne-Marne Offensive: "The assaulting lines moved forward to the first objective without encountering much resistance with the exception of the St. Amand Farm, which lay in the sector of the (French) 153d Division on our left. One platoon of Company G assisted the French in the capture of this farm." And farther on: "They (the assault companies) had not progressed more than one hundred meters when they were stopped by enfilade machine-gun and direct artillery fire coming from machine-gun nests and a battery of 77's located in or near Breuil, which was in the French sector. * * * when it was determined that the assault companies were definitely stopped, the two support companies of the battalion were ordered to extend the line to the left and capture Breuil and the defenses in front of it. This attack had not progressed more than three hundred meters when it was stopped by terrific machine-gun and artillery fire from the vicinity of le Mont d'Arly, Saconin-et-Breuil and the ravine * * * (places in the French zone). The machine guns of the battalion were not to be found any place. It was afterward discovered that the riflemen who had been detailed to carry ammunition for the guns had thrown away their boxes of ammunition and had picked up rifles and joined their own companies. The machine gunners, who had suffered heavy losses from the enemy fire directed at the assault companies, were struggling forward very much overloaded, and arrived too late to be of any value in this attack." Reading this last may cause us to ask why the battalion commander did not wait for his machine guns to prepare and accompany the attack by their fire. The answer is that tanks had come up, the attack had been ordered and the battalion commander had to do everything possible with what he had on hand, stick to the barrage and get forward as far as he could. During the last five days of the Aisne-Marne Offensive the 28th Infantry (left regiment of four regiments in line) "advanced over eleven kilometers * * * and

captured nearly as much ground to the left of its sector as it did in its own." It should be recalled here that the 28th Infantry was the left regiment of Berdoulat's XX Corps and that its coöperation with the French division at its left had to be arranged, theoretically at least, through the headquarters of the French Tenth Army. As it really worked out, the American battalion commander settled the matter himself.

Let us examine into another assault during the Meuse-Argonne Offensive. The commanding officer, II/30th Infantry, writes: "The 2d Battalion followed close in rear of the 3d Battalion and when the two forward companies were entering the woods, German machine-gun and rifle fire opened from Ferme de la Madeleine, a German stronghold, outside the regiment's zone of action, and poured a ruinous fire into the flanks of the 3d Battalion. At this point, the battalion commander, 2d Battalion, faced his two right companies (E and F) to the right and attacked Ferme de la Madeleine—clearing it of the enemy, taking a large number of prisoners and machine guns. These two companies held their position along the eastern portion of Bois de Cunel to the right of the Nantillois-Cunel road, five hundred meters north of the farm. When the edge of the wood was gained, connection was made with units of the 3d Battalion on the left. The Germans were forming for a counter-attack within a few hundred yards of the edge of the woods. Rapid fire from these companies broke up the attack. Attempts at further advances were halted by enemy rifle fire from front and right flank. These companies remained in this position until elements of the 80th Division occupied the area late in the afternoon. The artillery barrage on the right of the road by the 80th Division caught these companies within the 80th Division sector, thereby causing numerous casualties. This happened in spite of the fact that the higher command was informed of the capture of Madeleine Farm and the position of the 30th Infantry troops in the 80th Division sector."

This example shows how a battalion can protect its advance in its own zone by acting in an adjacent zone, incidentally aiding the advance of an adjacent battalion. It also shows that artillery fire in the attack is adjusted to the advance of the infantry of its own division and that communication between adjacent divisions must be

better than it was in this case if a battalion is to operate fairly safely outside of its own zone of action.

The commanding officer, II/30th Infantry, writes concerning the attack of the I/30th Infantry on the trenches north of the Bois de Cunel on October 10: "Arrangements were made with the artillery to cover the trenches with a preparatory fire followed by a barrage. The attack to commence from Bois de Cunel at 7:30 p.m. The plan of attack on the enemy position was as follows: The 1st Battalion, now five hundred meters north of the woods, to withdraw to edge of woods in order to escape the preliminary artillery bombardment and barrage, and then advance from that line of departure, closely following the barrage. * * * The 1st Battalion could not be withdrawn from its position in the open until dark on account of the fact that it was impossible to move in this open space during daylight. * * * at dark the battalion began to fall back to the woods and there began reorganizing for the attack at 7:30 p.m. Reorganization was difficult—due to loss of control in the darkness, loss of direction in withdrawing and the enemy artillery fire, which was terrific within the limits of the woods. Soldiers became mixed with other units in the woods and could not locate their commanders. It was approaching H hour. The preliminary bombardment had commenced and the battalion commander designated to make the attack was still in the process of gathering together the remnants of his battalion in the confusion that existed. H hour arrived and yet the battalion was not in any condition of organization for an attack of so great an importance—consequently, no troops moved forward at the designated hour." These trenches were taken at 10:00 p.m. the same night by another battalion of the 30th Infantry. This extract illustrates the impossibility of moving men pinned to the ground by fire, the confusion caused by darkness and fire, the withdrawing of units in order to scour out an area insufficiently bombarded by the artillery and the necessity of having units on the line of departure at H hour. It also shows that an assault can be made at night.

So, applying all the power he has, the battalion commander tries to overcome the enemy resistance. If the assault fails, some groups break to the rear, others dig in where they are. The regimental commander should be in touch with the battalion commander and

may (if two battalions of the regiment are in line) order a combined attack of the two battalions; he can reinforce the action of the battalion commanders by his unengaged elements—the reserve battalion, regimental howitzer company units, tanks, extra infantry units temporarily attached to the regiment, or by calls upon the light artillery for aid.

It sometimes happens that the assault units are unable to hold the ground taken. Writing of the day of October 4 in the Meuse-Argonne, the commanding officer, I/26th Infantry, states: "The assault echelon of the 18th Infantry, now badly depleted, fought its way up the steep slopes of Hill 240, small groups reaching the crest. Here they met with such heavy fire that they were unable to dig in. They withdrew to the base of the hill and held."

World War experience shows that it is impossible to estimate how long it will require for a battalion to attack and capture an enemy position; some have been taken in a matter of minutes, others have resisted capture for years. A battalion has only so much capacity for combat and when that capacity has been exhausted some other battalion must take over the job.

NOTE:

Assault fire can be executed safely only by riflemen who are able to maintain something approximating a line during their advance; such a formation may give an excellent target to enemy enfilading automatic weapons—hence assault fire should be used in the open only when danger of fire by the enemy from the flanks is slight.

CHAPTER EIGHTEEN: RESUMING THE ADVANCE

Once an attack has stopped it is a little difficult to get it going again. After a successful assault the battalion commander may find many of his rifle units intermingled, massed and pausing on or near a position which may be known to the enemy and consequently liable to be subjected to his fires. The retiring enemy must be kept under heavy fire. Time may be necessary for straightening out; local security detachments must be sent forward and to the flanks to keep in touch with the enemy and to protect the battalion, also to give warning of the counterattack by the enemy that is invited by any pause of the attacking battalion. It may be necessary to reconstitute a reserve from the mingled assault elements. As automatic weapons will be needed to aid any new advance as well as to hold the captured position against counterattack, units of the machine-gun company must be hurried up and placed so as to insure the gain that has been made, as well as to prepare for resumption of the advance. If the wheeled transport has been able to keep up, machine guns and infantry heavy weapons can come up promptly.

After a battalion has become war-experienced, the commander of the machine-gun company will always have some of his units in hand ready to open promptly any fire that emergencies may demand of these powerful weapons. In like manner, the commander of the accompanying gun, who is well toward the rear, must, of his own volition, place his gun so as to beat off any enemy armored fighting vehicles that may accompany a counterattack.

In general, any battalion advancing in the later stages of an attack is getting farther and farther into the unknown, and along the whole front of the division things may become a little disconnected. The battalion is moving away from the location of the regimental command post and away from its supporting artillery. It is true that these move up in echelon as opportunity offers, but delay and confusion may exist. The battalion commander is much more on his own than in the earlier stages of the attack. An illus-

tration of one thing that can happen is given in the *History of the 28th Division:* "Unfortunately, either the French artillery or the Nth Division, not appreciating our advance and change of position, had continued artillery fire on La Viergette." This fire apparently caused casualties in the 28th Division.

So much for the situation to our rear; what have the battalions on each side of us done? Where are they? Information at the battalion command post should tell us; there is supposed to be radio communication between battalions of the same regiment and the connecting groups may have been able to keep in touch with adjacent battalions. Frequently, however, adjacent battalions are out of touch with each other for hours, sometimes even days.

What about the battalion itself? It has overcome resistance but has sustained losses and some of the machine guns and infantry heavy weapons may have fallen behind. Morale is undoubtedly good. Has it failed to clean up the ground it has passed over and are there enemy infantry sniping us in the back? This is more than likely to happen in wooded areas. Extension of our front line to meet laggard battalions on either flank may have drawn additional assault units from the battalion reserve into the front line. Ammunition may be needed; the first-aid station may be full of wounded whom the divisional medical regiment has not yet evacuated. On October 4, 1918, the III/26th Infantry was in division reserve and advanced only four thousand five hundred yards during the day. The commanding officer of this battalion writes: "The battalion aid station had accompanied the unit forward throughout the day by three separate moves, taking advantage of such cover as had been dug by the troops preceding us. It is interesting to note here that all the medical enlisted personnel attached to the battalion had during this first day been killed or wounded." Even if not engaged, a battalion may suffer heavy losses.

What about the enemy? We have been moving away from our supporting artillery, from reserve battalions and, possibly, away from some of our machine guns and infantry heavy weapons. At the same time we have been moving toward all these elements of the enemy defense. We have overcome the immediate enemy resistance; he may counterattack in order to regain the position he has just lost or he may be waiting in position farther on, ready to

resist our next attack. He, as well as we, can move. The scouts and observers of the intelligence platoon, working under the intelligence officer, must inform the battalion commander; the infantry airplane may furnish information. The battalion commander must disseminate this information, sending it forward, backward, and sideward to adjacent battalions.

Unless his orders or the situation require him to pause, the battalion commander will want to keep the enemy on the run, and he will build up his plan for an advance. The chances are that he may have no definite idea of what he has to meet and his plan of attack may be no more than going forward in a formation which, while rendering his assault companies and attached units as little vulnerable as practicable, will at the same time enable him to determine any enemy resistances. Getting his assault units under way will tend to straighten out any confusion that may have resulted from the assault. "In motion, a soldier always finds it easier to do what he's told than to try to figure out how to do something else."

The battalion commander's order may be no more than to tell his company and attached unit commanders to resume the advance in the formation used when advancing from the line of departure. A heretofore unengaged rifle company might be used to relieve one of the assault companies. The assault may have caused casualties, some of the infantry heavy weapons may be unavailable, but success has raised morale and the battalion will go forward with increased vim against an enemy that has been defeated and thrust back. This vim will be needed; the enemy may have set up machine guns in all sorts of unexpected places, and counterattack by the enemy is quite likely. Command decentralizes largely into the hands of the battalion commander; if he has pushed ahead of adjacent battalions he has the responsibility of watching his flanks and the opportunity of aiding, by action toward his flanks, such of the adjacent battalions as are not abreast of him. An officer of the 26th Infantry, writing of the Meuse-Argonne Offensive, states: "By way of orientation, the reader should consider himself on a battlefield occupied by a battalion with the action taking place on a front of from three hundred thirty yards to twelve hundred yards during the entire period of the operation, with the right

flank exposed, and with stubborn resistance by the enemy." The exposed right flank was on the limiting line of the zone of action of the division.

In the later stages of attacks there may be much mixing of units, particularly if there has been hand-to-hand fighting in villages. The troops of the 18th Infantry that took the château of Buzancy on July 21, 1918, consisted of small groups of many different companies, and mixed with them were a few Senegalese from the adjacent Moroccan division. The author of *Without Censor* tells that the 3d Division took Clairs Chênes Wood with whatever troops could be raked and scraped together: a company of three hundred left from two battalions of a thousand men each, machine gunners, signal communications personnel.

During the later stages of an attack, battalions are sometimes able to gain ground by sending forward patrols, sometimes as much as what may be left of a rifle company. These patrols occupy terrain that is free of the enemy, or clear away such enemy resisances as they are able to handle, thereby enabling the remainder of the battalion to advance. On occasions, patrols have been sent forward to infiltrate into the enemy's dispositions with the idea of holding the positions attained until the battalion attack should come up with them. When patrols are used in this manner to gain ground during an attack, we see that the decentralization of command characteristic of the attack has reached about its maximum—the captains, lieutenants and sergeants are carrying on battle.

An Infantry School monograph states: "The battalion commander decided to advance by infiltration and made good progress until finally delayed by machine-gun fire. * * * Patrols failed to take the strong positions held by the machine gunners and it was decided to withdraw our leading elements and have the artillery clean out these enemy machine guns."

Writing of the attack of the 1st Division in the valley of the Aire, a battalion commander states: "On the morning of October 2, before daybreak, front-line battalion commanders were astonished upon receipt of verbal orders originating at corps headquarters, to penetrate the enemy screen in their front with strong combat patrols and locate his defensive positions. This order was based

upon a report from the French on the left of the Forest that the enemy had withdrawn.

"At daybreak strong patrols started out in a heavy fog. Passing through the enemy outguards in the mist and fog, they penetrated to the vicinity of the Exermont ravine where most of them gave their lives. Some of the few survivors were not picked up until the advance of the 1st Division on October 4.

"The similarity of the experiences of these patrols makes it unnecessary to go into the details of the operations of each. Because of the great difficulties facing the junior officer under these circumstances, I shall deal with one.

"The battalion commander of the right flank battalion, complying with the regimental order, sent a patrol of two officers and seventy men. Anxiety for the safety of the patrol caused him to send with it a signal detachment corporal and private with a breast-reel of wire and a telephone.

"In the confusion of events which followed no report except a verbal one was made. In this detachment one officer and twelve men survived. The following comes from the officer's personal diary: 'The patrol left battalion headquarters about one hour before sunrise, two officers and seventy-five men; it advanced in double file to the line of outguards. At the line of outguards it deployed in two waves, the first wave in skirmish line, the second in squad column about fifty feet in rear—the fog was thick. The two officers were between the skirmish line and the line of squad columns. When the patrol had advanced about a half kilometer it was fired on by several machine guns from Montrebeau Wood. Lieutenant X ordered the patrol to double-time to the draw which was just ahead of us. We advanced at a run and up the crest of the hill on the other side. Several men fell; we could see nothing to fire at. At this point the patrol was stopped by machine gun fire from the left rear, the left, and from across the Exermont ravine. Suddenly a nest of two about forty yards in front of us opened up. Lieutenant X, the patrol leader, was killed as were a number of the men, while trying to rush the nest. It was finally put out, and two Boche killed. Fire was so heavy that we had to dig in where we were. Men were falling on all sides. At this time Corporal Y cut the phone in. I got the battalion com-

mander and told him what a mess we were in. He said 'to hold where we were.' The fire from the woods to our left rear became so heavy that I sent Corporal Z and six men to work their way against it. They succeeded in putting out one light machine gun and reported the woods heavily held. About one hour later some thirty Boche were discovered immediately in rear of the remnants of our patrol in skirmish line. Part of the patrol was faced to the rear. Just then Captain A was seen coming forward with a part of his outfit and the Boche withdrew. About 1:00 p.m. orders were received to withdraw to the line of outguards. We had about twenty men deployed on a front of two hundred yards. I managed to get fourteen survivors back to the line of outguards and reported my arrival to the battalion commander.

"As great as was the cost, the patrols had accomplished their mission. Information was now available to lay the barrage for the initial attack."

CHAPTER NINETEEN: TAKING UP A DEFENSIVE ATTITUDE AT SOME STAGE OF THE ADVANCE

If the infantry battalion pauses during an attack the pause gives the enemy a chance to breathe: he is given time to improve his dispositions, move up troops and secure artillery support. Every pause of our battalion is an invitation to the enemy to counterattack. These considerations show that when a battalion is ordered to pause, there should be some good reason for such an order.

Some pauses during an attack are normal; for example, if the attacking battalion is advancing behind a rolling barrage there are pauses in this barrage at announced objectives, so that the battalion will have time to mop up all resistance short of the objective and straighten itself out before advancing toward a new objective.

The reason for an ordered pause may not be apparent to the battalion commander; he must take it on trust. But, while the enemy can improve his dispositions and move up additional troops, the commander of the attacking battalion can do the same; he can gather his company and attached units so as to be able to apply power, whatever happens; he can bring up ammunition, water, food and perhaps rest a little.

One of the axioms of infantry combat is that the battalion never gives up ground it has captured unless ordered to do so. If during an attack the infantry battalion has to cease advancing, it must prepare to hold on to what it has gained. The battalion in defense will be studied in Part 4, but in that part we shall discuss the battalion in a situation where defense is the main consideration of the infantry division as a whole. The defensive attitude taken up by a battalion that has to pause during an attack differs in some respects from that assumed when a preconceived defense by the entire division is the governing idea. In this chapter we shall study the case of the battalion's defensive attitude when it is taken up solely as an incident of the attack and with the idea, generally, that the advance is to be resumed. Every bit of time available enables the battalion commander to improve his defense and only

further time, material and personnel are necessary to develop a defense of the most highly-organized type.

The battalion commander may have advanced under orders to seize a defined objective, which may mean a pause along this objective. If that is the case, the chances are that this objective has been selected with some consideration given to its suitability for defense. But an order, unexpectedly received, directing a battalion commander to pause, may find the battalion on terrain unsuitable for taking up a defense. Again, a battalion commander may have to pause in his attack due to enemy resistance which he is unable to overcome with the means at his disposal—a situation that may develop at any stage of an attack. Here again, the battalion commander may find himself on ground extremely unfavorable for defense. Whatever be the cause, the battalion commander is faced with a complete reversal of mission: he has been attacking, now he must prepare to defend. Fortunately, in every attack formation there is the germ of a defensive formation; in both attack and defense we place our units in depth.

The battalion commander must issue an order, but before doing this he, however hastily, must build up a plan of defense and come to a decision. Furthermore, as his plan of defense is "how" he intends to apply the fires of his companies and attached units to hold his ground, he must make a reconnaissance, however sketchy it may have to be. It is to be remembered that the commander of an attacking battalion is constantly studying the terrain into which his battalion is attacking and that, in a measure, he is fairly familiar with the terrain upon which he has to take up the defense. The reconnaissance may bring out the fact that it is necessary to eject the enemy from a position in order to occupy the desired main line of resistance.

In building up his plan of defense his knowledge of the enemy will come from the effects of enemy fire, what little can be seen of the enemy, and such reports as have come in from sources outside of his battalion. As regards his own battalion, he knows, generally, what he has in hand and what units may be coming up behind.

If the pause that has been ordered involves adjacent battalions, the regimental commander may have defined a main line of resistance on the terrain, but it is easy to imagine featureless, unmapped

areas in which the battalion commander himself would be at a loss to say exactly where he is. At all events, unless he is pinned to the ground, there will be many times when the battalion commander, of his own volition, will want to move his battalion forward or back within reasonable limits in order to find a line fairly suitable for his main line of resistance. He may be unable to move forward; a movement to the rear involves giving up captured ground, and, in a pause that involves battalions adjacent to his, he must consider what they may do—because if a continuous defensive line is presented by several battalions, the flanks of these battalions are secure and they can provide one another with mutally flanking machine-gun fires.

The line of observation along which the local security detachments are to be left will probably be forced on the battalion commander; that is to say, this line will be the most advanced points to which elements of his assault companies have been able to force the attack. It is groups of these advanced elements that will be left in place to act as local security detachments. Their facilities for observation of the enemy and their distances in front of the main line of resistance may be very unsatisfactory; there will be situations when, due to close pressure by the enemy, he will have no local security detachments out in front. In this latter case everyone will be on the watch.

To what extent will the artillery be able to aid if the battalion is counterattacked during the pause? The battalion commander does not know, but he knows this: that the artillery can lay down a close barrage only if it knows the exact location of the main line of resistance of the battalion. Promptness and accuracy in furnishing the artillery with this information are essential; the artillery liaison officer should be able to help. If the battalion is operating in a featureless or unmapped region, it will be difficult to define the location of the main line of resistance with sufficient accuracy to enable the artillery to fire "by the map," consequently much dependence will have to be placed on the artillery liaison officer, who may have to conduct fire for adjustment.

In accounts of defensive attitudes taken up during the course of an attack, there is much mention of the efficacy of rifle fire by the defenders. This may be because the machine-gun units had been

unable to keep up. Protective artillery barrages require information and time for their proper adjustment. When opposing infantry are close together and changing position frequently, it is difficult to tell exactly where they are and the light artillery of both sides has to be careful lest it fire on its own infantry. Moreover, the terrain being defended may not lend itself readily to use of defensive artillery barrages. If barrages are finally secured, the battalion commander must promptly and clearly arrange the signal communication means for calling them down.

Having determined his main line of resistance, the battalion commander will place (or leave in place) his assault companies so that they can defend it, having these assault companies maintain local security detachments out front in touch with the enemy. He will endeavor to connect with adjacent battalions. When a pause occurs during an attack, men are prompt in digging themselves in; the sooner a definite place is assigned each company on the main line of resistance, the less chance there is of wasting the labor of the individual digger. If prompt report of dispositions be made to the regimental commander, he can aid in protecting the flanks of the battalion and in connecting with adjacent battalions.

Writing of the mobile situation of October, 1914, an officer of the 2nd Battalion, K. O. S. B., says: "In the prisoner's camps in Germany you will meet one or two companies of many of the regiments of the British Army, captured at one swoop after desperate resistance. The enfilading machine gun that is pushed up at night into the gap between two battalions and dominates both lines of trenches at dawn; therein often lies the key to these captures on a large scale. To get into touch, to keep in touch and to keep on keeping in touch; that saves a battalion from disaster."

In a defensive taken up during the course of an attack, the battalion commander will place more rifle units in his holding force (the units on the main line of resistance) than he will if he is defending a highly organized position. There are several reasons for this: first, due to mixing of the opposing infantry, neither artillery can fire with confidence that they will not hit their own men, which enable both sides to increase the density of their infantry; second, in a highly organized position with fires well arranged from concealed trenches, a few men with automatic

weapons can do the work of many who are less well-placed and less well-protected, as in the case under discussion.

Until the battalion commander has built up his plan of defense the machine guns will defend from the positions they happen to be in. When changes of position can be made later to carry out the plan of defense, sections of the machine-gun company are placed so as to provide intersecting bands of fire along the fronts and flanks of the companies on the main line of resistance; some sections (roughly a third) placed farther back, will serve as break-through guns and protect the flanks of, and intervals between, the assault companies along the main line of resistance. Prompt and definite designation of the areas to be held as strongpoints by the rifle companies is necessary in order that the machine-gun sections may be placed so as to flank-fire them. A rifle company will be placed in reserve. The attached units will be placed where they can inflict most damage on the enemy. The battalion staff can straighten out the automatic functions of the battalion commander: signal communications, supply and evacuation. The unit commanders and staff of a war-experienced battalion will make every effort themselves to anticipate the orders of their battalion commander. If conditions permit, the battalion commander can revise his plan later, basing it more fully on the machine-gun units he finds available, for, as the old field service regulations stated: "Machine guns constitute the skeleton of the defensive position."

The preceding is a summary of the defensive arrangements of the battalion commander when he has to take up a defensive attitude during the course of an attack. A detailed study of the defense, bringing out the reasons involved in these arrangements, will be made in Part 4.

The order issued by the battalion commander would probably be oral instructions to his company and attached unit commanders to occupy their designated places with a view to holding the main line of resistance, which he would define. Fog, smoke, darkness and the confusion of battle might make it difficult to have even these very general instructions transmitted and carried out.

We have remarked that in the defense the infantry battalion commander has to think in terms of smaller units than he does during the course of an attack, for the reason that a defense is more

nearly static in character than an attack. With plenty of time this is true, but if a defensive attitude has to be taken up unexpectedly the battalion commander will be busy enough in giving areas to his assault companies to hold as strongpoints, assigning a general location to his reserve, splitting up his machine-gun company so as to best aid in the defense as a whole and placing his attached units where they can inflict most damage on the enemy. A few minutes outlining of a rough plan of defense is worth more than a perfectly devised plan issued an hour later, particularly if the enemy has attacked in the meantime. Military history recounts many instances of surprise, and how many battalions have had to defend without other plan of defense than the endeavor of each individual man to kill as many as possible of the approaching enemy infantry. But what battalion commander, unexpectedly going upon the defensive, does not hope for the time necessary to accomplish a few essentials? Napoleon said: "Ask me for anything but time!"

Writing of the Aisne-Marne Offensive, the commanding officer, II/28th Infantry, states: "The eastern slope of the Missy-aux-Bois ravine was captured about 10:30 a.m. and the units were hastily reorganized and the attack resumed. The assault progressed about three hundred meters east of Breuil where it was stopped by heavy fire from the front. There being no reserves left to renew the attack, a front line was established by the men digging in where they found themselves. * * * The casualties of both battalions had been so great * * * that one thin front line was established." In this case a fresh battalion was put in to relieve these battalions, the latter being withdrawn and reorganized.

The commanding officer, I/9th Infantry, describes the reorganization of the regiment in the Vaucastille Ravine on July 18, 1918: "I returned to Vaucastille Ravine and started the reorganization of the regiment at once. About eight hundred men and eighteen officers were assembled there. Captains A, B, C, and myself were the only captains. Major B had been killed so Captain C was designated as commander of the 2d Battalion. * * * The officers were then ordered to assemble the men by companies and battalions; to organize the companies into squads and platoons and appoint commanders for them, and to send out an officer and some noncommissioned officers from each battalion to round up

stragglers. * * * Lieutenant E, Machine-Gun Company commander, had been killed and according to reports the machine-gun company had suffered heavily, as the Germans had recognized their loads and concentrated on them with machine guns and snipers. * * * Immediately after reorganizing I met Major F who was commanding the assault battalion of the 23rd Infantry and made arrangements with him for a coördinated defense in case of a counterattack. * * * No digging was to be done as the sides of the ravine afforded ample cover and the men were exhausted. A good spring was found * * * A quantity of German bread and canned food was found and the men got something to eat. I made myself unpopular by breaking some bottles of brandy because there was not enough for all and the finders were much the worse for it when I discovered them. * * * By 10:30 a.m. the reorganization ordered had been carried out. The battalions were spread out along the steep, wooded sides of the ravine for about four hundred yards and the men were sufficiently spread out not to be surprised by shell fire. Most of them fell asleep where they were as they were exhausted after two bad nights, a day of marching and a day of fighting on reserve rations. The cover and lack of movement must have kept us from being spotted by German airplanes as not a single shell fell in the ravine during the ten hours that we lay there awaiting orders. * * * We talked over the attack of the morning and got a very good idea of the general situation. Captain W told us that he had gotten into Vierzy about 9:30 a.m. with a mixed group of 1st and 3rd Battalions of the 9th, 23rd Infantry, 5th Marines and Algerians from the French 38th Division on our right. The machine-gun fire from the stone buildings was too much, however, and they were driven out."

Any pause in an attack is helpful to the automatic functions of the battalion commander. If the pause be sufficiently long, ammunition, water and food can be brought up. Hot food and drink are morale raisers, but it is risky to send back machine-gun vehicles to hurry them up; while the vehicles are gone, the advance may be resumed.

The necessity of taking up a defensive attitude during the attack may find the battalion on such unsuitable ground that the battal-

ion commander will have to make a short withdrawal (very likely at night) to more suitable ground.

Furthermore, during the entire duration of such a pause, the battalion commander must make such preparations as will be necessary to recommence the advance.

The commanding officer, III/26th Infantry, describes the defensive attitude assumed by his battalion on the night of October 5, 1918: "The leading companies assaulted again at 4:00 p.m., but this movement was futile. Three waves were mowed down as they emerged from the cover of the woods. Company K, on the right, managed once more to cross the valley in its front. On the left, however, the farthest any man advanced was the commanding officer of Company I. He fell sixty yards from the woods with a bullet wound in his head. Darkness was falling over the Argonne. There were now no officers, no noncommissioned officers and but twenty-eight privates left in Company I, and one officer, two noncommissioned officers and forty-seven privates in Company K. The battalion commander ordered the advance stopped and directed that the two front-line companies dig in where they were. A section of machine guns was ordered forward on each flank.

"As soon as it was dark enough to afford concealment the assault and support companies were ordered to exchange positions. Our remaining 37-mm. gun and two 3-inch trench mortars were put in position along the eastern edge of le Petit Bois to cover the Bois de Moncy and the ravine running to the east of Hill 272. A combat group was established in the Farm d'Ariétal. Arrangements were made with the support battalion commander to cover the flank of the unoccupied territory between the assault and support battalions. The left flank was refused somewhat to connect up with the 28th Infantry. Listening posts were established. A combat patrol was ordered to observe any movements of the enemy in the ravine east of Hill 272. Orders were issued for two patrols to reconnoiter during the night. One was to go at 10:00 o'clock and reconnoiter the front of Hill 272; the other was to move out at 11:30 and reconnoiter the enemy's left on Hill 272.

"The battalion now awaited supper. The kitchens had been ordered to move up to the Ruisseau de Mayache under regimental control as soon as darkness fell. This was done but the officer de-

tailed to lead the carrying party failed to accomplish his mission. There was no food for the assault troops that night. Water also was scarce."

CHAPTER TWENTY: REPELLING A COUNTER-ATTACK

After one week's experience of the American attacks in the Meuse-Argonne, Superior Army Command C, on October 3, 1918, made the following report to Field Marshal von Ludendorff: "The Americans display a distinct fear of being encircled. Even closely formed regiments or battalions, when their formation was penetrated, retreated to their main line of resistance as soon as they became aware that the mass of their division was no longer close by. * * * When met by a counterattack they would retreat, sometimes kilometers, rallying only when they reached their rear lines and were once more under cover of their machine guns." This gives the German report of what some American battalions did when counterattacked. As one of our axioms of infantry combat is never to relinquish captured ground unless ordered to do so, this German report, if true, would make it appear that some of our battalions failed to conform to this axiom during the first week of the Meuse-Argonne Offensive.

An attacking battalion may expect to be counterattacked after it has penetrated an important part of the enemy's position. The enemy will wait until our battalion has extended itself in the attack and, for one reason or another, pauses. While our battalion is in this awkward situation, possibly slightly out of balance, the enemy may counterattack us, preferably at a flank. If our adjacent battalions have kept abreast of us the battalion commander will have no flank exposed to counterattack. The enemy's artillery or armored fighting vehicles may aid his counterattack though there will be many times when the enemy will counterattack without their help.

What warning of counterattacks do the battalion commander's intelligence functions give? If the terrain to the front and flanks of the battalion is under observation, preparations by the enemy can be seen. If there is cover, fog, smoke or darkness, the counterattack may come with little or no warning. In the later stages of an attack, signal communications are likely to break down and higher commanders, even if they know of counterattack threats,

may be unable to warn battalion commanders. During the day, the infantry airplane may drop messages informing the battalion commander of suspicious assemblages of the enemy, or may indicate such enemy threats by firing tracer bullets against them. The infantry airplane itself may be able to call down artillery fires on an enemy forming for counterattack.

Formations for attack and formations for defense are both arranged in depth, which shows that every attack formation contains the germ of a defensive formation. When an attacking battalion is counterattacked by the enemy, the battalion commander has, placed toward the rear, a few sections of his machine-gun company, his infantry heavy weapons and his battalion reserve. These he uses to piece out the resistance that is being made by such of his units as are already engaged. At any pause in an attack men in the assault companies will start digging themselves in if it will afford more protection. In commenting on the operations of the 30th Infantry in the Meuse-Argonne Offensive, the commanding officer, II/30th Infantry, says: "Machine guns usually followed the assault companies in action and when the advance was held up they were immediately placed, some in line with advance elements and others at good machine-gun positions in rear, in such a manner as to be able to fire on hostile infantry and machine-gun nests and to repel possible counterattacks."

Writing of the advance to the Paris-Soissons road on July 18, 1918, the commanding officer, II/28th Infantry, says: "About this time the enemy could be seen forming for a counterattack in the vicinity of the strongpoint on the left. The artillery was notified through the 26th Infantry, and artillery fire was requested. One battalion of the 7th Field Artillery was given the message by the adjutant of the 26th Infantry as it was moving forward near Missy-aux-Bois. It galloped forward to the Paris-Soissons road under cover of a small ridge and wheeled its guns into line. Guns were hub-to-hub and opened on the enemy with direct laying. This fire soon disorganized the enemy formation and the counterattack was not attempted."

The commanding officer, I/26th Infantry, writing of the day of October 6, 1918, in the Meuse-Argonne Offensive, states: "On the 6th of October no advance was ordered. Efforts were made to push

patrols through the woods toward Hill 272. The 3d Battalion, while attempting to infiltrate toward Hill 272 encountered an enemy force estimated to be a battalion, forming for counterattack in the ravine north of Hill 269. The battalion commander disposed his battalion to meet the enemy and the battalion opened fire promptly. The regimental observation post on Hill 212 had also observed this movement and, on its call, artillery, previously registered on this approach, dispersed the formation."

These examples mention the effect of artillery fire; many counterattacks have to be repelled by the battalion without any artillery aid. Well-sited automatic weapons should be very effective; many accounts stress the effect of *rifle* fire in repelling counterattacks; the machine guns are not always at hand. If an enemy counterattack is made with armored fighting vehicles, the battalion commander will be glad if he has at hand the necessary accompanying gun or guns to beat them off.

CHAPTER TWENTY-ONE: PURSUING

The object of the pursuit is to find the retreating enemy, follow him, fix him, then fight him. If a disorganized enemy can be relentlessly harried he will be unable to form a rear guard. If an enemy rear guard can be destroyed, the pursuing battalion will be doing its part in the general attempt to hook onto the main body of the retreating enemy. Machine-gun units will be attached to assault units ready for promptly opening fire; light artillery may be attached to the battalion: all known enemy formations within range must be promptly taken under fire.

A pursuing battalion is usually a tired one. It may have been worn down by combat before taking up the pursuit, or it may have been unengaged at the moment it commences the pursuit. In the latter case it is quite likely to have been worn down by long marches. Frequently it is necessary to drop the men's rolls in order to maintain speed of movement.

Discussing the German offensive of March, 1918, Rudolf Binding says: "It is practically certain that the reason why we did not reach Amiens was the looting at Albert and Moreuil. * * * The two places, which were captured fairly easily, contained so much wine that the division, which might properly have marched through them, lay about unfit to fight in the rooms and cellars. * * * The halt gave just time for French artillery to be brought up from the south. The imprudence, together with hunger, thirst and the general sense of years of privation, were simply too great and too overpowering."

During an attack it is difficult to maintain signal communications with other units and to keep the battalion supplied with ammunition, water and food. These difficulties increase during a pursuit. There have been cases where ammunition, water and rations have been moved direct to pursuing battalions by motor transport, and American infantry was moved in pursuit into the town of Buzancy in November of 1918 by means of trucks. Efforts will be made to keep the battalion combat train up with the battalion. In late 1918 the art of road demolition was in its infancy; in future war-

fare we may expect an enemy to leave the roads in bad condition.

Command decentralizes to a marked degree during a pursuit; a light-artillery unit may be attached to the infantry battalion; the battalion commander will find much scope for his initiative, and should be well forward. To be effective, pursuit must be prompt and this may require that the assault battalion carry out the pursuit. Every delay accorded the enemy will be utilized by him in placing automatic weapons to hamper our pursuing battalion. The night march of the 9th Infantry on November 3-4, 1918, well illustrates the results obtained by thrusting infantry through an enemy position. A pursuit is not started by the battalion commander unless he is ordered to do so by the regimental commander. If the battalion commander keeps in touch with the retiring enemy by means of patrols, he will be able to commence a pursuit whenever ordered to do so.

Pursuit of a defeated enemy involves some of the difficulties characteristic of an advance guard: the enemy will stand where necessary to enable his material to be removed and he is quite likely to make intensive use of his air corps against pursuing troops. If the pursuit is made during the day, the battalion may have to advance across country in an approximation to an attack formation; if the pursuit is made at night it will be necessary to use an advance-guard formation on routes or roads. In any event, the prescribed route must be accurately followed. In either case the rate of advance will not exceed one and one-half miles per hour.

In pressing back a retreating enemy the battalion commander can feel much freer to push rifle companies out of his zone of action in maneuvering against the enemy. This is because infantry action along the whole front probably has become disconnected on both sides, the friendly artillery fires are less likely to fall on us, and, finally, because the situation demands that bold action be taken in order to keep the enemy on the run.

The characteristic of rear-guard action is to force the pursuing troops to deploy and make an attack, delay them with fires of automatic weapons and artillery at long range, then get away quickly on the roads while specially-mobile units, left behind, deceive the pursuers into continuing their relatively slow attack across

country. Plenty of artillery and automatic weapons in the enemy rear guard enable it to fight delaying actions through the day, with the object of pulling away from in front of the pursuit during the night (Chapter Eight, Section VI). An Infantry School monograph describes the pursuit by the 120th Infantry on October 9, 1918: "It was favorable country for the use of machine guns and the Germans used its advantages to the fullest extent. The enemy machine gunners took heavy toll of the attacking troops, though it is believed that they had few rifles in their rear guards, which were fighting obstinate delaying actions." This extract illustrates the principle of rear-guard action: inflict losses on the pursuing enemy without allowing them to come to grenades and bayonets with the riflemen of the rear guard.

A pursuing battalion may profit by the action of our armored fighting vehicles, infantry in motor transport or cavalry which, operating under orders of a higher commander, will push on up the roads, endeavoring to destroy or fix the enemy. Our air corps, also, may help. On the other hand, a pursuing battalion may meet the opposition of enemy armored fighting vehicles; if it does, the battalion commander will be thankful if he has the accompanying gun or guns necessary to beat them off. The probable use of armored fighting vehicles by the enemy would be to send them in to cruise around our pursuing assault companies while the enemy firing line breaks loose and withdraws. Their air corps may attack, or smoke, our pursuing battalion.

A pursuing battalion may receive very little information as to what adjacent battalions are doing; the battalion commander must guard his flanks, keeping some machine-gun units toward the rear for this purpose. The regimental commander may be able to make use of a reserve battalion in protecting the flanks of the pursuing battalion and in mopping up any resistances that have been passed over.

Describing the movement in pursuit of the 28th Infantry, the plans and training officer of that regiment writes: "Between 5:00 p.m., November 5 and 11:00 p.m., November 7, 1918, the regiment had marched or fought without food or sleep, during which time it had covered thirty-three miles; the operation consisted in a night march to the battle position, a march in pursuit with an ad-

vance guard, development, attack, transition from the offensive to the defensive and a withdrawal. * * * (The regimental commander ordered the plans and training officer to accompany the point of the advance guard, making him responsible that the column followed the road indicated.) * * * The regimental commander, realizing the almost superhuman effort it would require to get the regiment into position, gave orders to the battalion commanders to inform, not only all officers, but, as far as possible, all the enlisted men of the nature and object of the operation, and the effect it would have on the German Army if successful. The regimental commander rode along the column and told many of the men the object of the operation. It is believed that this materially helped the morale of the men. * * * The men were already worn physically and mentally; they were hungry; their rain-soaked packs began to feel unbearable and many of them dropped by the roadside. The Headquarters Company threw away all their equipment except one 37-mm. gun. The entire company carried this gun; it was carried by two men at the head of the company until they became exhausted; it was then passed on to the next two men in rear and so on through the company until it reached the end, when it was again started at the head of the company. The machine-gun companies carried their equipment in a similar manner. The men marched as in a dream and the instant the column halted they sank down in the mud and were instantly asleep."

CHAPTER TWENTY-TWO: BEING RELIEVED

When the combat capacity of the battalion has become lowered to a degree that renders it undependable for the execution of a mission, it is relieved.

Writing of the operations of July 18, 1918, the former intelligence officer of the III/59th Infantry, states: "The sister regiment, the 58th Infantry, which had preceded our battalion on the march, was committed to action at daylight, July 18. Their casualties were so heavy that as soon as darkness came in the evening of that day, the 3rd Battalion, 59th Infantry, was ordered to relieve the 2d Battalion, 58th Infantry * * * *." This was the first attack of these regiments.

Mere physical losses are not sufficient to ruin the combat capacity of a battalion, though they affect it. When a unit that has suffered losses is sufficiently fatigued it will have to be relieved. Speaking of the opening of the Meuse-Argonne Offensive, the *History of the 28th Division* states: "One battalion of the 109th Infantry Regiment, when withdrawn from the firing line, was commanded by one of its sergeants. Each battalion was left with an effective strength of a hundred men." However, the same account continues: "When the regiment (109th Infantry) was finally relieved on September 7 by the French 307th, it was a pitiable band of men that marched to the rear. Little groups of men that had once been companies, in command of a sergeant, made it look as though the losses had been terrible. Few companies had even a single officer left and one officer would be in charge of several companies. However, when they finally reached their former camping place of Arcis-le-Ponsart woods and the groups were assembled, the loss, although severe, was found not to be as heavy as thought."

A battalion is relieved most easily when the relief can be accomplished unknown to the enemy. Night is the obvious time for relief, though it brings some difficulties in movement—fewer to the battalion being relieved, however, as this battalion has considerable knowledge of the terrain.

Relief of a battalion by another battalion results in the terrain being occupied simultaneously by parts of two different units, with the possibility of confusion and exposure to enemy fire. Every effort must be made by each battalion commander to reduce to a minimum this period during which two battalions offer one target to enemy fire. A relief made in a stabilized situation can be carefully arranged and extended over several days, with a designated hour for the change of command. A relief in a mobile situation when the relieving unit attacks through the relieved unit gives little time for arranging details. As a matter of fact, when the relieving battalion leap-frogs the battalion being relieved, there are few details to be arranged. A relief can be most safely made under shelter of a rise of ground to the front, in a large woods or behind a curtain of smoke. Any noise that fire of the weapons of the battalion or of the light artillery can produce may be helpful in concealing knowledge of the relief from the enemy. In the event of an enemy attack during the relief the outgoing battalion commander retains command until the emergency is past.

The order relieving the battalion will specify the relieving unit and the time of relief. The battalion commander must turn over terrain and sometimes material installations on it, such as signal communications material and ammunition. The battalion commander may have to provide guides for each platoon of the relieving unit, although it is possible that the relieving unit may take care of this matter by sending forward an advance party.

A point or line of assembly, promising protection, water and food for the battalion being relieved should be announced in orders. Though its losses may have been heavy, it is still a battalion and it may be given a new mission in a short time. The regimental commander will want to know the strength and condition of the battalion.

A relief in a stabilized situation is arranged by a detailed order from a higher commander. Such a relief may extend over two or three days and involve the relieving of parts of the machine-gun company on different nights.

Relief in a mobile situation is a much more hurried process. The order for this sort of a relief may be no more than that another unit will attack through our battalion. One thing, however, must

be well known to the units of our battalion and those of the relieving battalion: the location of our front line. The necessities of the new attacking units as well as the safety of our own men demand that the new attacking units know that none of our men are out in front of the line. If isolated groups of our men are out in front they may be subject to our artillery fire or to being killed, through mistake, by the men of the new attacking units. When many officers have been killed and in foggy, perhaps unmapped country, defining the exact location of our front line is difficult (Chapter Thirteen).

The commanding officer, III/26th Infantry, tells of the following experience in leap-frogging the assault battalion: "The 1st Battalion, in assault, had at noon succeeded in driving the enemy from Hill 212 and from the woods to the east of the hill, and was organizing on the first of the day's objectives. The 3rd Battalion was ordered at this time to advance and continue the attack, passing through the 1st Battalion. We had reached the lines of the assault battalion at 1:15 p.m. Here information reached the battalion commander that a barrage would be laid on the southwestern portion of le Petit Bois, which covered the crest of the hill beyond the valley which we had to cross, as soon as we moved forward and on the Farm d'Ariétal. This barrage was to commence at 1:45, stand for fifteen minutes, then roll forward at the rate of one hundred yards every three minutes. This necessitated a nerve-racking wait of forty-five minutes under heavy artillery and machine-gun fire delivered at short range from across the valley and enfilade fire of all arms from the Bois de Moncy, but it was too late to do anything about it."

NOTE:

When an inexperienced battalion makes a relief of a front-line battalion in heavy woods, it would appear that the relief should be made during the day rather than at night; this because the noise of inexperienced troops at night is more to be feared than enemy observation during the day.

PART 4
THE INFANTRY BATTALION IN THE DEFENSE

CHAPTER TWENTY-THREE: DIFFERENCES BETWEEN DEFENSE AND ATTACK

Our field manuals discuss defensive battle as falling into two *classes,* active and passive, and into two *forms:* position defense and zone defense. Consideration of class and form of defense may be a matter of interest to higher commanders and military historians. But the commander of an infantry battalion given a defensive mission need not concern himself regarding the class and form of the defense; for him the problem is concrete and definite: he, with his battalion, aided by any personnel, material, or other help given him by higher authority, must do his utmost to hold the area assigned to him for as long a time as he is ordered to hold.

The gallant defense of the 38th Infantry, "The Rock of the Marne," shows that American troops can be as stubborn in defense as they are determined in the attack. Colonel Atkinson has written of the characteristics of the men of the Civil War: "Chief of these is the dogged determination which is supposed by every Anglo-Saxon, and allowed by modern scientists of other races to be the birthright of the race." The traditions of Trenton, the Valley of Mexico and Antietam have worthy additions in the Second Marne and the Meuse-Argonne.

"Decisive results are obtained only by the offensive" stated the old field service regulations, yet there can be no doubt that the defensive battle fought by Gouraud's Fourth Army along the Marne in 1918 shattered the German forces that attacked. The American First Army knew what it cost to push the Germans out of the Meuse-Argonne region. And, as time goes on, the power of automatic weapons on the defensive keeps on increasing; fewer defenders can hold back more attackers. During the World War there were a few favorable situations where three or four machine guns held up for hours the attack of an entire division.

From time immemorial, defending infantry has striven to protect itself. In early days, body armor, shields, and shoulder-to-shoulder formations were used. Opening out of formations, intrenching and camouflaging—including appropriate coloring of uniform—to secure surprise, are further measures of protection. The developing of more powerful weapons for defense has aided at all times. Starting out with a call to material measures only, infantry has ended by copying the characteristics and instincts of animals. A perfect defense is like that of the coiled adder: camouflage, concealment, silence and a sudden, deadly blow at the surprised enemy. During the World War the power of the defense had increased so greatly due to improvements in fire that, if the war had ceased in 1917, it might have been concluded that the defense was, momentarily, stronger than the attack. The tank brought an increase of strength to the attack.

Good infantry defensive tactics means the maintaining by the battalion commander of his freedom of action to apply power. Fire and movement characterize the defensive battle as they do the offensive battle; in defense, however, fire is clearly predominant over movement. The defending power of the infantry battalion lies largely in the fires of its companies and its attached units, helped out by the fires of adjacent battalions and supporting light artillery. We can conceive of defensive combat of the battalion in which movement is reduced to practically nothing.

In the attack we attempt to come to grenades and bayonets with the enemy; in the defense we endeavor to prevent the enemy from coming to grenades and bayonets with us. In the attack, success comes from a series of breaches made by the attacking units in the defensive system of the opponent; in the defense, success comes from holding an area. During an attack, the battalion commander, on occasion, may have to decide whether or not he should push on; in defense, the battalion commander knows that he must hold on where he has been ordered to hold. If, in the attack, battalion commanders must push forward without always depending on similar advances of adjacent battalions, in the defense they must give great attention to aiding adjacent battalions constantly by means of machine-gun fires.

In the defense we make the attacking enemy come to us; this

causes difficulties for the enemy and gives us certain advantages. When we attack, the enemy conceals himself; he is difficult to observe. When we defend, the enemy has to move toward us and we may be able to observe him. Poor visibility resulting from darkness, fog, smoke or gas, may hamper our observation. The defense inflicts casualties by means of artillery fires, infantry heavy weapon fires, machine-gun fires, automatic-rifle fires and rifle fires, and, if the fatigued attacker, burdened with equipment, comes to grenades and bayonets, a relatively fresh defender awaits him in a prepared position with weapons and ammunition close at hand.

We know that individual rifle companies or parts of them may be able to carry out an attack without the aid of machine guns, but when a rifle company is charged with defending a position, the company commander's first thought is to secure the aid of machine guns. Attacking means advancing with the intermittent aid of machine-gun fires; defense means remaining in one place with permanent aid of machine-gun fires as long as casualties do not prevent them. Like his battalion commander, the defending rifle company commander has less play for his initiative in so far as regards movement, and he turns to those who can aid him with fire. "The machine gunner should be taught that in attack his support is extremely valuable; that in defense, his support is decisive."

The frontage upon which a battalion can effectively attack is about two-thirds of the front upon which it can effectively defend. This is due, largely, to the differences between the powers of machine guns in the attack and in the defense. In the attack, the fires of our machine guns are head on to the enemy and usually it is difficult to secure enfilade effects; in the defense they can deliver oblique or enfilade fire against the advancing enemy infantry. The greater front that can be held in defense is a tribute to the powers of automatic weapons. These considerations show that when an attacking battalion is suddenly required to switch to a defensive attitude it should be possible for it to dispose itself well in depth.

The attack requires that a certain number of riflemen be in an advancing unit in order to produce fire, but in the defense we find that the characteristics of automatic weapons enable them to take the place of many riflemen, thereby enabling units of the latter to be kept out as reserves.

As regards enemy artillery and other fires, it is clear that a defending battalion offers a fixed target to the enemy; an attacking battalion offers a moving target. But the corollaries of this also have to be admitted: a defending battalion, though offering a fixed target, can dig in and thereby shelter itself from enemy fires, whereas an attacking battalion may have to move through the fixed fires of the defender's barrages and final protective lines, and, possibly, over obstacles placed by the defender so as to hold it under these fires.

In an attack, the attacker can concentrate the fires of his supporting artillery on some definite, critical area in the zone of attack, while the defender must be prepared to put down barrages along the entire front, with the chance that some of these may be wasted because no enemy troops are trying to cross the areas on which these barrages are falling.

In the attack, support given by our light artillery is intermittent: the batteries have to follow the advancing infantry battalions, supplies of ammunition must be moved up to the battery positions and an appreciable amount of time is necessary for adjusting fire. In the defense, on the other hand, the areas on which the artillery is to execute fires are known in advance; the infantry battalions remain in place, the artillery does not have to change position and supplies of ammunition can be accumulated near the batteries. These considerations show the necessity of the infantry battalion's holding its area; the line of infantry battalions protects its artillery. An enemy attack that threatens the defending artillery is liable to deprive the defending infantry battalion of its artillery support, and then the battalion would be reduced to only its own means of action.

In our discussion of the attack we found that at a certain time the supporting artillery must cease firing in order to allow the assault companies to go in with the rifle, grenade and bayonet. It is evident that many, if not all, of the machine guns and infantry heavy weapons of the attackers also must cease or lift their fires in order to avoid inflicting casualties on their own assault companies. That is to say, there comes a time when the attackers are reduced to only such weapons as can be used by moving men. But this is not true of the defending riflemen. Their position is fixed and is

known to the defending artillery and the machine-gun units, both of which can keep up their fires while the attackers, no longer aided by their artillery and machine guns, fatigued after an advance, have to show themselves in the open in order to make the assault.

As in the attack, moral effects as well as material effects are to be sought. Lieutenant General Liggett writes: "The infantry likes to hear its artillery barking close at hand, whether its fire is accomplishing anything or not." And in one of his studies of the battles in the Belgian Ardennes in August of 1914, General Allé-haut relates hearing an artillery battery commander complaining because the division commander had ordered him to fire to the front of the engaged infantry battalions. He was firing without a target; merely banging away. It later transpired that the only French infantry that held its positions that day was the infantry encouraged by this targetless firing. The battery was doing no execution; it knew only that it was clearing its own infantry, but the comforting effect of hearing its own artillery at work behind sustained the infantry engaged with the enemy. The noise of our own guns is like a friendly slap on the shoulder.

Defending troops may be able, sometimes, to choose the ground upon which they will defend. However, in order to combine his fires with those of adjacent battalions, or to enable the supporting artillery to fire effectively, the infantry battalion commander not infrequently may be ordered to hold a main line of resistance which he himself would not have selected; in the defense, fires of machine guns and of artillery are of great importance. The regimental commander may even order the siting of some machine-gun sections of the battalion in order that their fires may aid adjacent battalions. Furthermore, the battalion commander will be ordered to place his battalion reserve upon an announced general line. The battalion commander himself will give to his company and attached unit commanders orders that go into considerable detail. All of this shows that in *preparing* for defense the infantry battalion commander has many restrictions on his freedom of action to apply power; from regimental commander on down, command is highly centralized. These restrictions, however, have the object of either helping the battalion commander or strengthening the defense as a whole.

In the attack the battalion commander's plan deals largely with movement; defense has the characteristic of reducing the battalion commander's plan to the executing of specific fires, with, possibly, a counterattack by his reserve. In the attack, the battalion units move and execute such fires as they believe to be necessary; in the defense, the battalion units stick tight and execute all the fires possible. When we consider that in the attack the fires of certain units such as the machine-gun company, the infantry heavy weapons and the light artillery depend upon the places where the assault elements are from minute to minute, we see that the fires of these supporting units can be more continuously and more exactly applied in the defense than in the attack. This is because the combat companies are assigned positions to hold and also because the battalion commander can effect the coördination of the fires of the combat companies and supporting weapons of all kinds within his own battalion and along the fronts and flanks of adjacent battalions.

In the attack, the battalion commander does not concern himself with units of the size that constitute a combat group (from a few men up to as much as one platoon) because in an attack these small units move, and their movement is best handled by their immediate leaders who know the new terrain and the new situations as these are met during the advance. But preparing for a defense by a battalion is a much more centralized affair than preparing for an attack. The battalion commander, in defending his area, knows the problem of his whole area and may be able to place these small groups so as to utilize to the full their powers of defense. Machine guns, for example, are placed by sections of two guns each. The battalion commander is interested in the fires produced by the combat groups and the sections of machine guns, and hence has to think in terms of smaller units than he does in the attack. This is quite logical, for, with his battalion stationary on the terrain, the battalion commander may have time to give full consideration to the application to the terrain of the fires of the smaller units. In view of this, do we go too far when we suggest that in a defense technical considerations take on very great importance? "Combat intelligence is more thorough than in the attack. Observation posts are more carefully selected and prepared,

a more complete knowledge of the terrain obtained, and reconnaissance is more thorough."

The defense allows of more time for accumulating material and installing signal communications. But an attack usually implies that the enemy brings heavy fire to bear upon the defending units, with resultant destruction of signal communications material and casualties in runners. The units of the battalion will be given areas to hold. These orders may be the last they will receive until conditions of light, enemy fire and tactical possibilities enable the battalion commander to reconstitute a system of signal communications or, possibly, execute a counterattack. While they are being attacked, the units of a battalion cannot expect the visits of the battalion commander or his staff officers, as they can when they are making an attack. However, the battalion commander usually knows where his units are supposed to be, which is not always true in the attack.

During the course of a defense there may be few or no exchanges of messages between company, battalion and regimental commanders. Writing of the Marne Defensive on July 15, 1918, the commanding officer, I/30th Infantry, states: "In reply to a message from the regimental commander, 30th Infantry, for a report of the situation, indicating that he had not received the messages that had been sent to him during the previous five hours, the commander of the front-line battalion reported at about 5:00 a.m. that the losses of the battalion were very great; that the two companies (B and C) which constituted the outpost along the river were a total loss; that the survivors of these companies were stragglers. He also reported that communication within the battalion had been impossible. * * * Up to this time practically no information concerning the situation had come to the regimental commander because all means of communication had failed except runners, many of whom lost their way in the darkness or were killed by the bombardment." Writing of the same battle the commanding officer, 2d Platoon, C/30th Infantry, states: "The runner whom I sent out to the company headquarters in the right rear had been gone for a few minutes when he came rushing back saying the German troops were to our right rear, near the railroad, and the man whom I had sent out to our left, toward Lieutenant X's po-

sition, also returned saying German troops were over to our left rear. I ran back to the rear of the small ravine we were in and could see troops in skirmish line about three hundred or four hundred yards to our left and rear advancing up the hill toward the support positions. I was unable to distinguish whether or not they were German troops but felt sure they must be since they were advancing against our support lines."

Our old field service regulations stated: "Only through offensive action can a commander exercise his initiative and impose his will on the enemy." When the battalion is given a defensive mission, it means that for a time at least the initiative, in general, is abandoned to the enemy, and that, in consequence, the amount of initiative left to the battalion commander is greatly reduced.

What does this temporary abandoning of the initiative mean in the case of a battalion commander holding a center of resistance? He offers his battalion as a fixed target to the enemy; his combat companies can execute movement only within the areas of their assigned strongpoints; he cannot give aid to adjacent battalions by moving units of his combat companies to right or left; movement of his reserve is restricted to points along the battalion reserve line or, possibly, to evicting the enemy within the limits of his center of resistance; he is deprived of the use of movement in effecting surprise and must depend on concealment and fire; he knows that the troops attacking him will not be affected adversely by an advance of adjacent defending battalions, for these are as fixed in their centers of resistance as is his own battalion. His signal communications with adjacent battalions and within his own battalion are disrupted by destruction of material and presence of enemy troops in the intervals; he can neither receive information nor transmit orders; his battalion is in a fixed position, subject to having its observation reduced by gas or obstructed by smoke—he cannot move away from either; when attacks come at dawn the attackers know where they should go but the defenders' reserve cannot be sure that it is needed at this, that or the other place. Returning to our illustration of the prize ring, he can only counter the blows of his opponent; he cannot force him back into his own corner.

NOTES:

1. The principal difference between the defense in a mobile situ-

ation and that in a stabilized situation is that in the latter case we are, usually, better prepared to withstand a stronger attack.

2. Increase in the effective range of the rifle cartridge indicates the increasing responsibility of the battalion commander in arranging for mutual support, by fire, of adjacent battalions.

CHAPTER TWENTY-FOUR: ORDER RECEIVED BY THE BATTALION COMMANDER

The situation alone may cause an infantry battalion commander, of his own volition, to decide to take up a defense. This would be necessary when he is surprised and judges it better to defend than to attack. His decision in such cases is based upon the prime need of self-defense. Thorough exercise of his intelligence functions should minimize such surprises. Again, even though not surprised, a battalion commander, during the course of an attack, may be threatened by a counterattack of the enemy under such conditions that he will decide to take up a defense. Writing of the attack of October 8, 1918, the commanding officer, III/26th Infantry, states: "We had reached a point just below the eastern summit of Hill 272 when our scouts rushed in and reported an enemy column advancing toward us from the direction of Hill 263 and another from the northwest over the summit of the position we were attacking. The entire battalion was thrown into line, the left half facing northwest, the right half facing northeast. The enemy soon came into sight. It was our good fortune that we could fire our first few rounds into him before he could fully deploy."

A battalion commander, under various conditions, may receive an order to take up a defense. The most difficult case would be where he receives such an order during the course of an attack. If he makes an attack, takes an objective, and has in his pocket an order to take up a defense when that objective is taken, his difficulties will be less, for he will have had time to decide on what to do after taking the objective. If he receives an order to take up a defense under the protection of other troops out in front, his difficulties will be least. The character of the order received by the battalion commander will vary widely in the amount of detail prescribed; a battalion commander taking up a defensive attitude during the course of an attack may be told no more than to hold his ground, whereas a battalion commander who is to take up a defensive position under the protection of troops out in front may receive an order prescribing many details. Consideration of these

two extreme conditions shows that the time, personnel and material available for organizing a defense vary widely, yet in each case the effort of the battalion commander is the same; he must hold the designated area against enemy attack.

The area garrisoned by the infantry battalion, called a center of resistance, is the basis of defense of all of the higher units.

When a battalion commander is making an attack and finds it necessary, or receives an order, to take up a defense, there is a sharp change in his mission. However, as every attack formation has a line of assault units and a reserve, with the less-mobile long-range units toward the rear, we know that every attack formation has in it the germ of a defensive formation.

The order of the regimental commander directing the battalion commander to take up a defense will give the latter the "what, why, where and when" of his job; much of the "how" element is left to the battalion commander, though it is safe to say that the battalion commander has less scope for his initiative in the defense than he has in the attack. This is most clearly so as regards movement. As we shall see, many restrictions may be placed upon the battalion commander in the order he receives from his regimental commander. And, the same as in the attack, these restrictions are to help him, not hamper him.

The area the battalion is to defend will be assigned by the regimental commander and will depend upon the actual combat capacity of the battalion, the character of the terrain and the amount of time available for preparing, as well as upon the effort that is to be required of the battalion. The regimental commander will assign the battalion commander a narrow front if the area is difficult to defend; a broad front, if it is easy to defend (Chapter Thirty-one, Section IV).

The infantry battalion commander knows that the order of the regimental commander will refer to places on the terrain. If he has a suitably-scaled map, and if there is visibility enough to recognize the places on the ground, he will be fortunate. There may be no map, the terrain may be unrecognizable, and fog, smoke or night may have descended upon the scene.

Whether the infantry battalion commander takes up a defense on his own initiative or in execution of an order received from the

regimental commander, he will want to know what the enemy is doing and what friendly troops are out in front of the area he is to defend. He will want to know what these friendly troops are going to do: they can gain information, offer resistance and act generally as shock absorbers. The order received by the battalion commander should contain information of any friendly troops out in front.

If there are no troops outside of his own battalion out in front (as, for example, when a battalion commander takes up a defensive attitude during an attack) the battalion commander will have some of his own units out in front. He will know what orders he has given them and he will have such information as they are able to secure. The additional orders that he will give them will convert these advance elements, or parts of them, into local security detachments for the defense. Even with friendly troops out in front the battalion commander will be well-advised to put out local security detachments of his own.

In his order the regimental commander will make announcement of, or recommendations for, the defensive fires to be executed by the light artillery; the infantry battalion commander will have to know about these fires before he can complete the final adjustment of the fires of his battalion. The part played by the regimental commander in providing artillery support for the infantry battalion is an important one, so much so that the old field service regulations specify that the infantry regimental commander "insures the establishment of pyrotechnic signal communications from the front lines to the supporting artillery." (Chapter Thirty-one, Section IV.)

This matter of the barrage fires to be put down by the light artillery, and the relation to them of the battalion's main line of resistance, are of the utmost importance. The battalion commander must make every effort to settle the mutual relations of the rear edges of the light-artillery barrage fires and the main line of resistance of his battalion. This is one of the questions that must be considered during his reconnaissance, and its prompt solution is demanded by two considerations: first, the battalion will not receive artillery support until it is settled; second, the combat companies run the risk of losing the labor they put into digging in

their strongpoints if the latter are not properly sited along the main line of resistance, and have to be changed later. The artillery liaison officer should be able to aid in this.

The order of the regimental commander should announce the general location of the main line of resistance and the battalion reserve line, and give the limiting points on each of these lines in order that the battalion commander may know the maximum area of his responsibility for defense. The regimental commander may announce a line on which the battalion commander must place his security detachments; he may also specify the strength of these detachments and what they are to do. In addition to roughly blocking out the dispositions of the battalion as indicated in the two preceding sentences, the regimental commander should announce the right and left limiting lines of the battalion sector. These lines, passing through the limiting points and more or less perpendicular to the main line of resistance, extend into the terrain in front of the main line of resistance as far as the effective range of the weapons of the battalion (See Diagram No. 6). The battalion must take care of any enemy appearing within its sector; its fires may also be applied in the sectors of adjacent battalions.

The issuing of an order by a regimental commander does not insure that the battalion commander whom it concerns will be able to carry it out, for the enemy may do something to prevent execution. But the battalion commander makes every effort to accomplish his mission. If the defense is taken up behind the protection of other troops, it is probable that the battalion commander, with his company and attached unit commanders, has reconnoitered the terrain himself and made recommendations concerning its occupation to the regimental commander.

The order of the regimental commander also will note any units that are to be attached to the battalion. In a defense, a battalion commander may have attached to his battalion a platoon of the regimental howitzer company, the pioneer platoon of the regimental headquarters company, an engineer detachment, a detachment of chemical troops, possibly combat units or working parties from other battalions.

The regimental commander's order will state the aid to be given the battalion by any units not attached to the battalion, such as

machine-gun company or howitzer company units. Arrangements for groups connecting with adjacent battalions or protecting exposed flanks will be announced.

The order of the regimental commander will direct that the battalion keep in touch with adjacent battalions. The principle to be followed is that the battalion supposed to be the more firmly established is the one to maintain connection with the adjacent battalion. There will also be details regarding the automatic functions of the battalion commander: ammunition, water, rations, signal communications (including an announcement of the general location of the battalion command post), road communications and engineer supplies. All these things work from rear to front and the regimental commander will want to start them going as soon as practicable.

Some battalion commanders have received orders to resist light attacks of the enemy but to fall back if the enemy makes a general attack. The thought may be ventured that such an order is an attempt to place upon the battalion commander the duty of determining whether an attack is a local attack or a general attack. A general attack manifests itself over too broad a front for it to be within the ability of a single battalion commander to judge exactly what the attack really is. A battalion that is being raided might undergo all the enemy artillery fire characteristic of a general attack, yet it might be quiet along the fronts of adjacent battalions. In any case of attack, the battalion commander will be sufficiently concerned with holding the area assigned him to defend, without speculating on whether the attack is local or general. If he does finally conclude that the attack *is* general, he is, by that time, so committed to the defense that he could not withdraw his battalion even should he desire to do so. Only higher commanders can know whether an attack is local or general and they themselves must make decisions and issue appropriate orders. Writing of the Marne Defensive of July 15, 1918, the commanding officer, 2d Platoon, C/30th Infantry, referring to a moment some nine hours after a heavy enemy attack, states: "As later events proved, we were in a most peculiar position at this time; I thought that the whole action had been merely a good-sized raid which had been repulsed. The reason for this thought was that there was abso-

lutely no further movement in our range of vision and I did not know of the events which were occurring elsewhere at the time."

In general, there are but two kinds of defense for the battalion commander: one in which he is to hold his area indefinitely; the other in which he knows that after a certain period of defensive combat he will be authorized or ordered to withdraw. In the first case the battalion commander will have to prepare against the need of an all-round defense; in the second case he will have to take the measures necessary to keep open avenues for withdrawing (See Chapter Twenty-five, Section I, Notes 1 and 2).

After the battalion commander has received his order for a defense, and after any discussion, he will make his reconnaissance. This reconnaissance will be anything from a few minutes glance at a map to several hours study of map and terrain. If the battalion commander has to leave the battalion he turns it over to his second in command, who will maintain it on the spot, or carry out such instructions as the battalion commander may give with a view to moving it toward the area which it is to defend.

If there is danger that the battalion may be attacked before it settles down into the area it is to defend, the battalion commander must send out local security detachments under the protection of which he can make his reconnaissance, arrive at his decision, issue his order and move in the remainder of his battalion. Even if other troops outside of his battalion are reported to be covering the front, the battalion commander will be well advised to send out local security detachments of his own.

NOTE:

Developments in enemy armored fighting vehicles may require that as much as a battery of light artillery be placed near a defending infantry battalion in order to repel them.

CHAPTER TWENTY-FIVE: RECONNAISSANCE AND PLAN OF DEFENSE

I–A general discussion of plans of defense for a battalion; II–Reconnaissance of the battalion commander during which he builds up his plan of defense.

I: A GENERAL DISCUSSION OF PLANS OF DEFENSE FOR A BATTALION

The order for a defense received by the battalion commander from the regimental commander will give the former the "what, why, where and when," but will leave much of the "how" element to the judgment of the battalion commander. However, there will be less of the "how" element left to the battalion commander's judgment than in the attack. The "how" element is, of course, the plan of defense of the battalion commander.

A plan built up for a defense differs in many respects from the plans built up during an attack. These plans differ because of the great differences between the defense and the attack. Consequently, in discussing plans of defense in this section we shall mention, frequently, points that we have already brought out in the chapter that discusses the "Differences between defense and attack" (Chapter Twenty-three).

In the defense, the battalion commander builds up one plan of defense which is to hold good for a relatively long period on the same terrain; in the attack, the battalion commander has to build up a series of plans of attack from time to time as the battalion advances.

In the attack, movement and fire of all organic and attached units of his battalion have to be considered; in the defense, considerations of fires from more or less fixed places are preponderant and movement is limited to possible use of the reserve in making a counterattack. The essence of the attack is getting the assault companies forward so that they can come to grenades and bayonets with the enemy; the prime consideration in the defense is to pre-

vent the enemy from coming to grenades and bayonets with the defenders.

As regards the supporting arms, maximum fires of the light artillery are intermittent during the attack due to change of position of batteries; in the defense the batteries do not change position and their fires are available at all times unless the enemy puts them out of action or the means of signal communication fail to function.

In the attack, the plan is concerned with how our fire and movement can dislodge a stationary enemy; in the defense it is concerned with how the fires of our stationary weapons can stop a moving enemy. In the attack, the battalion commander plans how the terrain will aid him to use fire and movement; in the defense, he plans how to adjust his fires to the terrain in order to sweep it. In the defense, the battalion commander may be able to walk over the ground over which the enemy must advance; in the attack, he will be unable to closely study the terrain over which his company and attached units must advance.

In the attack, the plan includes what all organic and attached units are to do at a time announced by the battalion commander; in the defense, the plan is built up to go into effect at a time that will be decided upon by the enemy.

In the defense the plan, to a certain extent, is forced upon the battalion commander by the order received from the regimental commander and the conformation, vegetation and alteration of the terrain, which is merely another way of saying that in the defense the initiative is left largely to the enemy.

In attack, we surprise the enemy by concentrating power (fire and movement) at certain points; in defense, we surprise the enemy by bringing power (fire, sometimes movement of the reserve) to bear from concealed positions arranged in depth.

When the range of the then only infantry fire weapon—the musket—was three or four hundred yards, the plan of defense as regards infantry fire did not extend beyond a corresponding distance on the terrain. But the present weapons of the infantry battalion are much more varied in range and trajectory: the battalion commander has to consider the rifle, automatic rifle, hand grenade, rifle grenade, machine gun and howitzer company weapons. In

present day combat the ranges and trajectories of all these weapons must be borne in mind by the battalion commander when he builds up his plan of defense prior to making his decision. While we are on the subject of the fires of the organic and attached weapons of the battalion, we must remember also that the very powerful fires of the light artillery the battalion commander may be able to secure must enter into his plan of defense.

There is a further difference between plans for the defense and plans for the attack. In the defense the battalion commander must consider the places at which platoons (sometimes sections and even squads) are to take position; he must also consider the places at which he is to establish machine-gun sections. This means that in a plan of defense the battalion commander must think in terms of smaller units than he does in the plan of attack.

When the infantry battalion had the short-range musket as its only weapon, and defended in line, the plan of defense concerned what was in front of that line. Now that the infantry battalion defends by means of groups arranged in width and depth, the plan of defense demands consideration of the full depth of the dispositions including the battalion reserve, as well as consideration of the fires on all spaces between these groups, into which the enemy may penetrate. It is to be remembered that the particular area assigned the battalion commander to defend may be of such a character as to preclude the possibility of a defense in depth, and that he may be reduced to something closely approaching a defense in line. In this case, his backing up by the regimental commander will have to be more powerful.

The principal elements that enter into the battalion commander's plan of defense are his holding force on the main line of resistance, his local security detachments out in front, his reserve on the battalion reserve line, the supporting fires that will be given his battalion by the light artillery, and the flanking fires produced by adjacent battalions.

What are the jobs that have to be done by these elements?

The holding force, usually two rifle companies of the battalion, is to be placed so that it can hold the main line of resistance. The essence of the defensive action of a battalion is holding the main line of resistance. The main line of resistance, generally speaking,

will be announced by the regimental commander or broadly selected by the battalion commander in such a way that the exact details of its trace can be determined during the reconnaissance by the battalion commander. The final protective lines of machine-gun fires are placed in front of the main line of resistance as well as the barrage fires of the supporting artillery.

We have seen that the battalion as a whole defends by means of groups arranged in width and in depth. Established on the main line of resistance (in front of which we intend to stop the enemy) are areas garrisoned by from two companies to two platoons, called strongpoints. As the infantry battalion is only one of many battalions of the defense, the regimental commander must announce in his order the limiting points on the main line of resistance at which the battalion must connect with adjacent battalions. If the battalion commander is under the necessity of taking up a defense without an order from the regimental commander, he will have to establish these limiting points himself in agreement with the commanders of adjacent battalions. It is most important that the limiting points be mutually known to adjacent battalion commanders; only by knowing them and placing strongpoints in accordance with them can mutual support of adjacent battalions be arranged. If there are gaps of unknown width on his flanks, the battalion commander will know that his flanks are insecure, and that he can neither give to nor receive from adjacent battalions the aid of the flanking fire of machine-gun units. The same principle demands that each of his strongpoints know where the adjacent strongpoints of the battalion are placed; if they know this they can provide mutually flanking fires.

The local security detachments are placed on a line out in front of the main line of resistance so as to aid the holding force in defending the main line of resistance. How can they aid? The local security detachments can observe what the enemy is doing, can keep enemy individuals from approaching, can resist larger groups of the enemy, may be able to prevent the enemy from using certain small-caliber weapons against the holding force, thereby enabling the latter to work or rest; they can warn of impending attack. Should the enemy attack, the local security detachments can delay him, perhaps ascertain and report where the main enemy thrust

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is coming. If the local security detachments fight to the end in place, they can break up the enemy attack to a certain extent. If they are weak, it is better to have the local security detachments rejoin their units on or behind the main line of resistance before the enemy attack renders their return impossible. The local security detachments may be sent out from each front-line platoon of the combat companies, from each combat company, or from the battalion reserve. As security detachments are sent out, usually, at the rate of one rifle squad from each front-line platoon, we see that they amount to only four squads for the entire battalion front.

The line along which the local security detachments are placed may be forced upon the battalion commander by the enemy. This would be the case where a battalion which has been attacking suddenly has to switch to a defensive attitude; in this case the line along which the local security detachments are placed would be generally along the most advanced points held by the combat companies. In this case the local security detachments would be left in place from the personnel of each front-line platoon when the companies move to the strongpoints they are to establish.

The battalion commander may be informed that other troops out in front will do the security work for his battalion, but even so, the infantry battalion commander, like an advance-guard commander, may well maintain a degree of silent doubt regarding what *other* troops are going to do for him. He will be wise to take measures of his own for local security. If his local security detachments are one thousand yards in front of the main line of resistance they should be able to give the battalion commander plenty of warning in case of enemy attack.

The battalion reserve, consisting of at least one rifle company, is placed upon the battalion reserve line. The break-through machine guns are also on, or near, this line. This battalion reserve line is announced in the order of the regimental commander. But if not announced, the principle of its selection is that the line should lend itself to defense by the units placed thereon; its fires should cover the intervals between, and flank fire the flanks of, the strongpoints of the main line of resistance. Effective ranges of weapons dictate

that the battalion reserve line be from four hundred to no more than nine hundred yards behind the main line of resistance.

The preceding discusses the local security detachments, the holding force and the reserve as far as concerns the rifle companies. The battalion commander has his machine-gun company, his infantry heavy weapons and any other attached units still to place. These he breaks up and places with or near the rifle companies in such a manner as to further strengthen the defense.

We have considered the outline of the plan of defense as regards the functions of the infantry battalion and attached units arranged in depth and in width; we must remember that the light artillery may be expected to give us its powerful aid.

All of the fires and movement (the latter, we repeat, will be slight in a defense) at the disposal of the battalion commander must be arranged so as to maintain (to the extent allowed by his orders) freedom of action to apply power.

This discussion shows clearly that the plan of defense, like a plan of attack, is closely related to the terrain, and that no plan of defense can be built up without consideration of the combined effects on it of the conformation, vegetation and alteration of the terrain on which it is to be put into effect; which is to say that the plan of defense must be built up either during or after a reconnaissance of the terrain, no matter how short or incomplete this reconnaissance may be. So, while heretofore we have discussed the plan of defense in its outlines, we shall constantly recur to it during our discussion of the reconnaissance in Section II of this chapter.

NOTES:

1. The plan of defense discussed in this section refers to a defense of unlimited duration. Situations will occur where the battalion commander takes up a defense with the knowledge that the position will be held for a limited period of time, after which the battalion will withdraw. One case of this is where the battalion is employed in the outpost of a larger force occupying a defensive position; another is where the battalion is taking part in a delaying action.

When an infantry battalion commander knows that he is to withdraw after a limited period of defensive combat he can spread

his battalion over a frontage greater than that which would be assigned him for an unlimited period of defense. The close association of strongpoints and machine-gun sections that is necessary in a position to be held indefinitely is not necessary in the freer defensive combat of a battalion that is ultimately to withdraw. Barring the wider frontage, the same principles of defense apply as those which apply in the defense of the main line of resistance; i.e., any area occupied is given the maximum desirable preparation for defense allowed by the time, personnel and material available. The battalion commander may have attached units of machine guns and light artillery.

The battalion commander, however, will have to reconnoiter the route of withdrawal of his battalion; this route will be announced, probably, by a higher commander. So, if the battalion commander is building up a plan of defense for a defense of limited duration, he must bear in mind the differences we have just noted between a defense of that sort and a defense of unlimited duration.

In a plan of defense for a battalion that is to defend for a limited time only, more stress is laid on securing fire effect at long ranges than fire effect at short ranges; there is no need for a final protective line of intersecting machine-gun fire; there is less need of digging in for protection from artillery fire. This is reasonable, for we intend to stop or delay the enemy at a distance; we do not intend to let him come to grenades and bayonets with us. As it is not contemplated that the enemy will be allowed to come to grips with the battalion, there is no necessity for organizing the area in depth, and more weapons may be placed along a more widely-extended firing line.

2. A battalion commander may find that he is charged with the mission of defending an area for an unlimited duration of time, and that he must defend this area with only his battalion and its attached troops; i.e., he is isolated, momentarily, from all other friendly troops. These conditions might exist when he is charged with holding a bridgehead or fighting a defensive action while acting as a flank guard or a rear guard. Assuming that the terrain and other elements of the situation permit him any choice at all in building up his plan of defense, he would seek terrain that provides a perfect line of resistance all around the area to be occupied

by his battalion; this area should be of a size that just accommodates his battalion. Needless to say, such conditions would be almost impossible to find; the battalion commander will have to take just what terrain happens to be there, and this terrain may be unsatisfactory enough.

3. With the strength given in the tables of organization (war strength) it is stated that a battalion can offer determined resistance on a front of about twelve hundred yards.

4. The maximum depth of a center of resistance is limited by the effective range of rifles and machine guns, which is assumed, for this purpose, to be nine hundred yards. The battalion reserve line will be between four hundred and nine hundred yards back of the main line of resistance. This maximum distance of nine hundred yards leaves the foreground up to the main line of resistance within effective range of a rifleman on the battalion reserve line. The minimum distance of four hundred yards places the battalion reserve line one hundred yards to the rear of the maximum rearward position of the support line, which is stated to be three hundred yards. In many situations the terrain will be such that these specific distances may have to be modified.

5. The support line, along which are placed the rear platoons of the combat companies, is from one hundred to three hundred yards back of the main line of resistance. The minimum distance of one hundred yards prevents the platoon on the support line from being hit by fire directed on the main line of resistance; the maximum distance of three hundred yards is supposed to place the rear platoon within easy supporting distance of the platoons on the main line of resistance.

6. As the defending battalion is prepared to defend against an enemy attacking at dawn, or under cover of smoke, it is probably equally well-prepared against a night attack. As *surprise* is the principal characteristic of the night attack, the defenders must be watchful at all times.

II: RECONNAISSANCE OF THE BATTALION COMMANDER DURING WHICH HE BUILDS UP HIS PLAN OF DEFENSE

(See Diagram No. 6)

In this section we shall go into the reconnaissance of the battalion commander. Reconnaissance of the terrain to be occupied by the battalion (the center of resistance) and the terrain to its front and flanks is inseparable from the plan of defense. For this reason, this section will be a repetition of the preceding section of this chapter with the difference that we shall go into much more detail as regards the units and their relation to the terrain.

Reconnaissance is a part of the intelligence functions of the battalion commander in both attack and defense. Reconnaissance is essential, for without it the battalion commander cannot build up his plan of defense and consequently cannot arrive at a decision. The amount of time available for the reconnaissance may vary widely between a few minutes and many hours. When the battalion commander is required to take up a defense unexpectedly, his reconnaissance may be limited to a few glances at the terrain or even a few minutes study of a map. The advisability of making a thorough reconnaissance cannot be denied; the battalion commander will make as thorough a one as practicable. Consequently, in this section we shall discuss reconnaissance for defense on the assumption that it is made under cover of friendly troops out in front, thereby giving the battalion commander plenty of time for it, as well as the opportunity to examine the terrain over which the enemy will have to advance in attacking his battalion.

Generations ago, engineer officers were the only ones able to read maps and reconnoiter terrain; they were charged with laying out positions and trenches. Nowadays, however, the defense of a center of resistance is so highly technical as regards infantry fires that the infantry battalion commander must lay out his own organization of the ground (Chapter Two, Section V). Writing of the Marne Defensive in 1918, the commanding officer, I/30th Infantry, says: "The division engineer officer was charged with the exact siting of all works on the ground and the trace of the works as decided upon by him was ordered to be followed in all cases. The

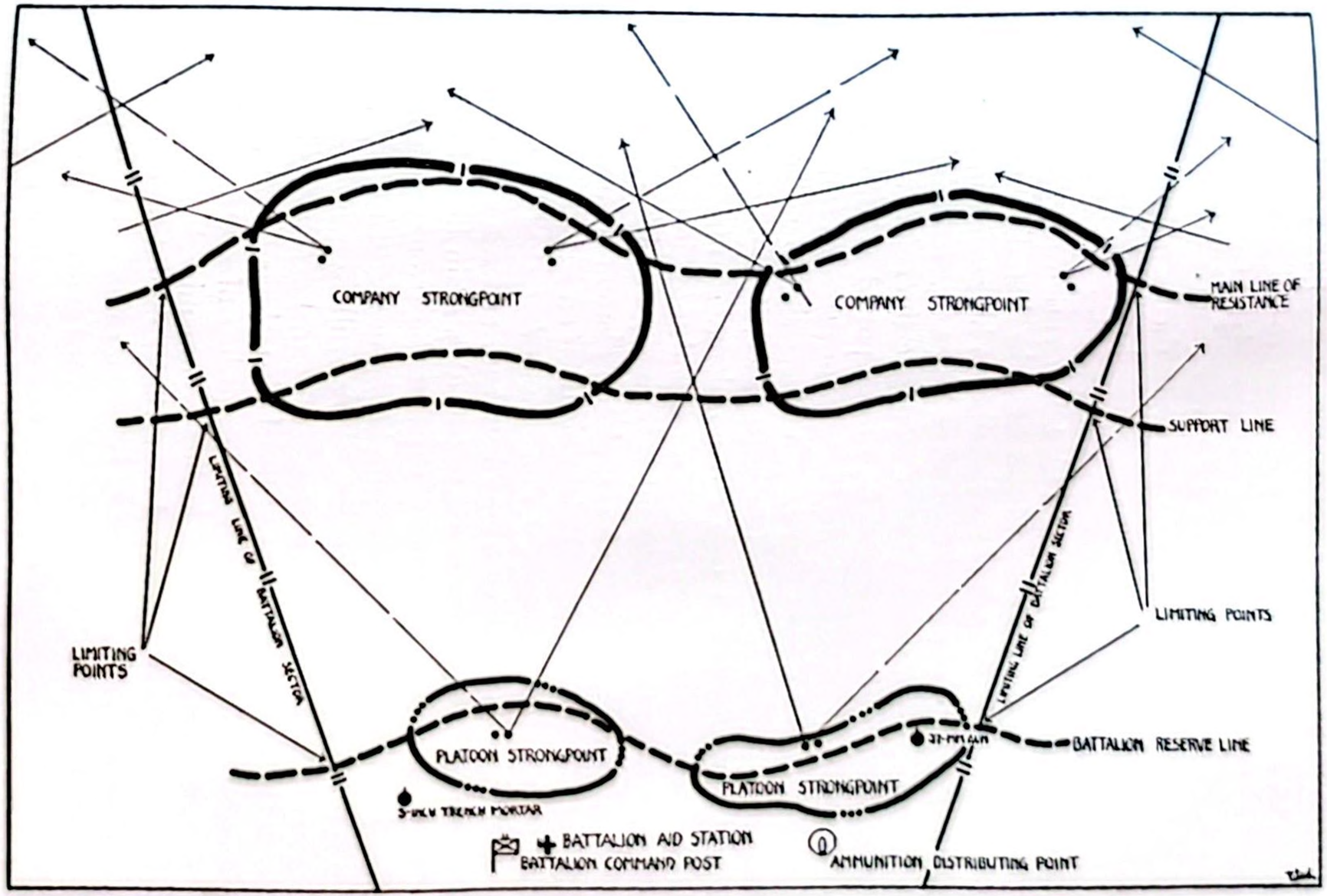


DIAGRAM NO. 6. *General appearance of a defense formation*

commander of the 30th Infantry disapproved of the location of some of the trenches dug by the engineers. He ignored the trenches which had been dug along the edge of the Bois d'Aigremont and had his own men dig rifle pits about one hundred yards in front of them. These rifle pits were then camouflaged. This saved many lives later when enemy artillery was directed on the trenches sited by the engineers along the edge of the woods."

In order to be free to devote his full attention to reconnoitering and building up his plan of defense, the battalion commander will turn over command of his battalion to his second in command and take with him such of his staff as he needs. If he believes that conditions will make it difficult to define lines and areas on the terrain he will take men with him to be posted as markers on the positions he is to select during his reconnaissance. The machine-gun officer and the artillery liaison officer should accompany the battalion commander on his reconnaissance; if an officer from each company and attached unit can go along, so much the better. The details of the terrain play a more and more important part as one gets down to the smaller infantry units; a division commander can order dispositions from a map, but a platoon commander must see the terrain before he can place his units on it.

The battalion commander must remember that he is charged with arranging the defense of a battalion, and not that of several separate units. The idea is not to garnish a main line of resistance with troops; the governing idea is that the strongpoints must be placed so that the fires of the machine-gun sections, of the infantry heavy weapons and of any available artillery may be combined with the fires of the strongpoints so as to make a composite whole, which, aided by natural or artificial obstacles available, will stop the enemy attack in front of the main line of resistance. Should the front assigned to the battalion commander be too wide for proper defense, the regimental commander should be so informed; the latter can take the measures he judges necessary. If the front assigned to the battalion commander is too narrow he can ask for more. If the terrain is not adapted to defense, it is probable that a narrow frontage will be assigned in order that the battalion reserve may be strong enough to compensate for the inherent weakness of the area assigned the battalion commander.

The reconnaissance of the battalion commander must determine exactly where he is going to place his holding force, his local security detachments and his reserve. In many cases the general lines of these locations will be among the restrictions placed upon him in the order he receives from his regimental commander: that is to say, he will be given, generally, a main line of resistance to be held by the holding force, a battalion reserve line on which he must place his reserve, and he may be given a line along which to place his local security detachments. The governing idea of the whole is that he must be able to bring a maximum of fires to bear on avenues of enemy approach, with a minimum of exposure of his companies and attached units to the enemy's fire.

The main line of resistance, the line along which the battalion commander places the strongpoints of his holding force, is the basic line of the defense. It is the line that must be warned by the local security detachments on the line of observation; it is the line that must receive the aid of defensive fires from the organic and attached units of the battalion that are not part of the holding force; it is the line in front of which the supporting artillery will place its barrages. Obviously, it is the line the trace of which must be determined promptly by the battalion commander: once its trace is decided upon, the organic and attached elements of the battalion not included in the holding force can be assigned general locations and the artillery will be able to start to prepare supporting fires.

The supporting light artillery will do its best to place barrage fires on selected areas along the front of our center of resistance; the rear edges of these barrages can seldom be brought back closer than two hundred yards to the main line of resistance. We say "selected areas" because it is rarely that the supporting light artillery is numerous enough to provide barrages along the entire front of the battalion, and the two hundred yard limit is due to the flat trajectory of the light field gun. The infantry battalion commander must strengthen these artillery barrages (they may be few, thin, or late in coming down when called for) and, particularly, by skillful use of all weapons in or attached to his battalion, he must cover with fire the places that the light-artillery barrages cannot cover. This consideration alone suffices to show

the high degree of centralization of command that is necessary in preparing a battalion to hold a center of resistance; the battalion commander alone is the leader who can adjust the fires of organic, attached and supporting units to coöperate in the defense of the center of resistance as a whole.

The battalion commander may receive the exact details concerning the light-artillery barrages at various times after he is ordered to take up a defense and these barrages may be changed from time to time in an effort to improve them. What the infantry battalion commander must remember during his reconnaissance is that he will probably have such barrages sooner or later, and he must remember also that the final locations of the combat company units must be such as to enable their fires (and those of the machine-gun sections) to strengthen the light-artillery barrages and sweep with fires any ground that will not be covered by the light-artillery barrages.

The defensive action of the battalion is an effort to hold the main line of resistance: the local security detachments give it warning, the holding force defends it, and the battalion reserve may restore it if it is broken. Consequently the battalion commander will place his companies (called combat companies) with respect to the main line of resistance so as to enable each company to hold its own strongpoint even if adjacent ones fall, execute frontal fire, flanking fires along the flanks and fronts of adjacent strongpoints, and cover with fire the unoccupied intervals between adjacent strongpoints. The fact that the main line of resistance has been announced in the order of the regimental commander does not relieve the battalion commander from the duty of making its exact trace in his center of resistance an irregular line (forward on spurs, backward in valleys, and taking advantage of natural obstacles), indented so that these frontal and flanking fire effects can be produced. Pronounced salients, of course, are a weakness and must be avoided. The possibility of placing the support line (line along which the support platoon of each combat company is placed) one hundred to three hundred yards in rear of the front-line platoons of those companies, so that its fires can supplement the fires of the front-line platoons, may dictate the shifting of the main line of resistance backward or forward.

One or more of the strongpoints must include the sites of observation posts giving views over the ground in front of the main line of resistance and within the center of resistance so that the battalion commander can follow the progress of events. In giving each combat company its particular strongpoint, the battalion commander remembers that he is going to place sections of machine guns inside these strongpoints in such a way that some of the machine-gun sections in each strongpoint will be able to execute flanking fires along the fronts of adjacent strongpoints, and cover with frontal fire the avenues of approach the enemy may attempt to use. The old field service regulations stated: "Machine guns constitute the skeleton of the defensive position." As a rough rule, the battalion commander will place one-third of his machine-gun sections on or near the battalion reserve line to serve as breakthrough guns; the remainder, called first-defense guns, are placed in the strongpoints of the main line of resistance, or so placed outside of those strongpoints as to aid in their defense. In exceptional cases the machine-gun sections are attached to the rifle units.

We have spoken of strongpoints as having a garrison of one rifle company each. Terrain conditions may require that two companies occupy one strongpoint and a cut-up area with much vegetation might demand that a number of strongpoints be established, each composed of two platoons.

It is obvious that the main line of resistance should be exactly determined first, because it is along that line that the greatest efforts in defense will be made by the companies and attached units of the battalion, and the more time for digging in, the stouter will be the defense. There is a further reason for promptly determining the main line of resistance: *until this line is determined and reported to the light artillery, the latter cannot prepare its powerful fires to assist the infantry battalion.*

When a battalion is the flank battalion of a division, special difficulties arise in arranging mutual support with adjacent battalions of another division. Mutual support in the vicinity of limiting lines of action is difficult to arrange and to execute, both in attack and in defense.

Defense, we have agreed, is largely by fire. Let us step over into enemy territory and see what fires he is subjected to as he attacks

our center of resistance. First he gets the occasional lightning stroke of our heavy and medium artillery, then a storm of light artillery projectiles, then an enfilading sleet of machine-gun, automatic rifle and rifle fire, strengthened here and there by the fires of the infantry heavy weapons, rifle and hand grenades. These bands of fire through which the enemy infantry have to pass do not have sharply defined edges; they are of a mixed character at the edges and the missiles become smaller and more numerous as the enemy approaches our main line of resistance. And while we are over in enemy territory (if we can go over it), let us note the covered avenues of approach, the terrain invisible from our center of resistance where he can place his weapons and assemble for attack, the obstacles that will hamper his movement and the bottlenecks he must pass through in order to come to grenades and bayonets with us. This knowledge will be useful to us when we place our units in our center of resistance, for, if we find one part of our center of resistance is naturally weak, we can back it up with more fires.

a. The reconnaissance of the line to be held by the holding force—the main line of resistance. Reconnaissance of the main line of resistance is really the reconnaissance of an area. The strongpoints of the holding force are placed with their front edges on the main line of resistance, their rear edges being on the support line—the line on which the support platoons of the combat companies in the strongpoints will be placed. The area to be reconnoitered includes the terrain to the front of the main line of resistance as far as the weapons of the battalion will reach. As the strongpoints have to support adjacent strongpoints by flanking fires and cover with fires the gaps between adjacent strongpoints, this area also includes the terrain to the right and left of each strongpoint as far as the weapons in each strongpoint can reach. Finally, as each strongpoint is to be prepared to make an all-around defense, the commander of each strongpoint will be interested in the terrain to the rear of his strongpoint.

In order to decide upon the location of his strongpoints, the battalion commander (from the company commander's standpoint) must consider how they lend themselves to all-around defense by all the weapons in the strongpoint; (from his own stand-

point) must see how the machine-gun sections to be placed in each strongpoint will be able to flank-fire adjacent strongpoints, and (from the artilleryman's standpoint) must note how the barrage fires can be put down, thereby insuring the integrity of the holding force as a whole. The best solution of this problem may have to be a compromise among the three requirements. As one part of the main line of resistance may be easier to defend than another, the strongpoint placed in that part may have a wider front than the other strongpoints.

Conformation, vegetation and alteration are characteristics of any given area of terrain. The many possible combinations of these three characteristics are impossible to catalogue, but we can consider a few of them from the standpoint of the strongpoint garrison, which wishes to fire on the enemy without presenting a target for the enemy to fire upon. As the fires of the light artillery are a powerful aid to the defensive action of the battalion, we shall note the characteristics of the terrain that favor or hamper these fires. It is not often, perhaps, that the battalion commander will be called upon to make a choice—his main line of resistance may be given to him—but he should know how the terrain affects the various kinds of fires with which he is concerned.

If a strongpoint is placed on level ground it can sweep it satisfactorily with fire; if on high ground, it will see more deeply into the enemy's dispositions, but the defending fires, being plunging, will be less effective. If the artillery can establish observation posts on high points either in the strongpoints or in rear of them, it will have the ground observation necessary to execute prompt and accurate fires.

If a strongpoint is on a slope running down toward the enemy, the defenders can take advantage of a long field of fire through which the enemy must pass in order to come to grips with the defenders. The attackers, even those far back in the attack formation, will have the defenders in view and can fire on them with long-range weapons in aid of the assault companies of the attack. From within or from behind such strongpoints (on a slope running down toward the enemy) the light artillery observers can note the effects of its fires for some distance into the enemy dispositions. It must be remembered, however, that our light artillery barrage,

falling on a slope running down toward the enemy, does not give accurate results, for, due to the flatness of the falling trajectory and the falling slope, a projectile that is "long" is likely to be very "long." Similarly a "short" is likely to be very "short," which shows, incidentally, that the rear edge of such a barrage cannot be drawn back very closely to the main line of resistance without endangering the forward platoons of the combat companies. So, if the slope running down toward the enemy is very steep, the light artillery may have great difficulty in putting down a barrage close in front of the strongpoints. From this we see that a strongpoint well sited for producing effective infantry fires may be poorly sited from the viewpoint of the supporting light artillery.

If a strongpoint is on a slope running up toward the enemy the defenders will come into view of the attackers only after the latter have crossed the crest. The defenders, heretofore safe from the ground observation and maximum fire effect of the long range weapons of the attack, can then open fire on the successive leading elements of the attackers. If the strongpoint is not too far behind the crest out in front, the field of fire will be shallow, but most effectively swept by the fires of the defense including those of the defending artillery. This is the "reverse slope" position which, during the World War, was so seldom taken by frontal attack. From infantry fire consideration alone, a position giving a long field of fire is desirable and that would indicate a forward slope. When supporting artillery fire is considered in connection with infantry defense we see that the reverse slope position has certain special merits. And when the attacking enemy has a great deal of artillery we may be certain that the reverse slope position has special merits. (See Diagram No. 5.) The occupying of a reverse slope does not prevent us from sending out local security detachments to or beyond the crest. If the distance from the main line of resistance forward to the crest is sufficiently deep to enable the developing of the full effect of the light-artillery barrage, this barrage can be accurately placed and the rear edge of it can be brought back quite close to the main line of resistance with safety to the men in the strongpoints. For the light artilleryman, the difference between placing fires on a slope running up toward an enemy and placing them on a slope running down toward the

enemy is much the same as the difference between trying to make bull's-eyes on a vertical target and trying to make them on a target lying on a slope almost parallel to the falling trajectory of the projectile.

The battalion commander may find the terrain of his center of resistance so arranged that he will have to place his main line of resistance on a slope running down toward the enemy, while his reserve will have to be on the reverse slope. In this case the reserve may be able to keep the enemy from passing the crest between it and the main line of resistance, but it will be unable to aid by its fires the strongpoints on the main line of resistance.

If the terrain in front of the defenders forces the enemy to show himself during a long time while attacking, we should be able to inflict casualties on him over a long period. If, on the other hand, this terrain renders it possible for the enemy to move up large groups to places within close distance of our main line of resistance, we must increase the amount of flanking fire in front of our main line of resistance, have rifle strength sufficient to defeat the attackers in close combat, and, if practicable, put out protective obstacles.

Vegetation may be anything from grass to large trees. High grass or crops conceal our dispositions but hamper our observation and, consequently, reduce efficacy of fire at long range. Thick woods hamper observation and reduce efficacy of all fire weapons. Combat in heavy woods reduces to short range, less complex weapons: grenade, pistol, bayonet. The holding force of a center of resistance in a heavy woods would probably be relatively stronger in rifle units than the holding force of a battalion in open terrain; the enemy will be unable to use long-range fires against the defenders, but he will be able to mass his assault companies near the defenders unobserved, perhaps with few casualties, and will attack with "men rather than with material." The strongpoints must be strong in men to repel the attackers; they will have to defend with "men rather than with material." This means that the frontage of a defending battalion will be less when it is defending in woods. Someone has remarked that "woods eat infantry." The early stages of a defense in woods will probably have to be made in line; a defensive system made up of strongpoints staggered in

depth may fail if the trees prevent observation and effective fire.

Edges of woods being likely targets for enemy artillery, strongpoints should be sited back of the edge, away from artillery fire directed at the edge, even though this reduces observation and efficacy of our weapons. Snipers and automatic riflemen can be posted in trees. In the case of small woods, it is sometimes best to get well out in front of them.

Some sorts of vegetation can be destroyed: grasses, crops, bushes, small trees can be cleared away in order to open up lanes for the fires of automatic weapons.

The battalion commander, if he is in a wood and is unable to see far to his flanks, will be sensitive about them; infantry does not like the thought that it is being encircled. Lack of observation and awkwardness of movement render it difficult to deliver counterattacks under the best conditions, yet local counterattacks are never more remunerative than in a wooded area.

Alteration may be the works of man in excavation and elevation: ditches, embankments, buildings. These lend themselves to the defense for they offer protection from enemy fire. However, trench systems usually show up to enemy observers and the other types of alteration are usually shown on maps, making them an invitation to the fires of the enemy. Artificial obstacles, anything that can be arranged to hold the enemy under our fires and yet not hamper observation or fires of the strongpoint, are alterations the defenders themselves can effect. Woods can be tangled with wire or abatis. In a wood, breastworks with a parados as well as a parapet are usually better than trenches; the space between the parapet and the parados should be narrow in order to reduce casualties from splinters.

Villages suggest water, food and protection; they have always attracted attackers and defenders. Villages, like small woods, are a standing invitation to artillery fire, including gas shells. Stone- and brick-built villages with many strong cellars give shelter from enemy fire and armored fighting vehicles. Villages built of wood are quickly knocked into splinters and burned by artillery or 3-inch mortar fires; their protective character is illusory.

Due to probability of enemy artillery fire, the actual edge of a village is an unsuitable line to defend. The defense should be

made outside of the village. A close-up defense should be provided inside, taking advantage of especially strong buildings and any areas or lanes that permit fire of automatic weapons. Steps must be taken to minimize the disorganization of units characteristic of village fighting. Prominent buildings attract enemy artillery fire.

The orders of the regimental commander, or other conditions, may leave but little choice to the battalion commander; he and his strongpoint commanders will have to make the best of the good points of the main line of resistance and endeavor, by other means, to compensate for the poor ones.

b. The reconnaissance of the line to be occupied by the local security detachments—the line of observation. This line may be designated in the order of the regimental commander, in which case it will be relatively simple to connect its flank detachments with the flank detachments of adjacent battalions. However, the battalion commander may have to select it himself. In either case, the battalion commander will reconnoiter it.

Like the reconnaissance of the main line of resistance, the reconnaissance of the line to be occupied by the local security detachments—the line of observation—is the reconnaissance of an area. This area includes the terrain from the line of observation back to the main line of resistance and the terrain forward from the line of observation, and toward each flank, as far as eyes can observe and patrols can move.

The local security detachments are interested in the terrain between the line of observation and the main line of resistance because helpful fires may come from points in this area or from the strongpoints on the main line of resistance. Furthermore, the local security detachments may have to fall back in rear of the main line of resistance, and if part of the area in front of that line is to be swept by friendly fires while the local security detachments are falling back, the latter will want to know the unswept routes along which they may fall back with safety.

Now, while the battalion commander looks over this area from the standpoint of the local security detachments, he must also see how this terrain affects the ability of the local security detachments to aid the holding force. Is the terrain such that information can

be sent back promptly from the line of observation, or does it appear that runners may be lost? Is there vegetation that will prevent observation of elements of the local security detachments by the holding force? Is there danger that the local security detachments may be quietly bayoneted by the enemy, with resultant surprise of the holding force? Is the vegetation such that any formed bodies of the enemy can move only along roads or paths, or can they worm their way through such vegetation as exists? Is there good observation over this whole area by the holding force, with a clear field of fire so that the holding force can open fire upon the attacking enemy at long range, or is the field of fire so restricted that fire can be delivered at short ranges only? In the former case, the holding force may require nothing more than warning by the local security detachments; in the latter case, the local security detachments might be ordered to offer resistance at designated places in order to break up the enemy attack formation.

Is the distance from the line of observation to the main line of resistance long—which should give time to alert the holding force before the attack comes, or is it short—which will require that a considerable part of the holding force be on the alert at all times? Is the distance so short that the local security detachments will have to put up a firm resistance in order to give time for the holding force to get to its weapons? Is the distance so long that, after giving warning of an attack, the local security detachments can get back in before our barrage fires come down, or is it so short that the battalion commander will have to call for the barrage fires at the risk of having them come down before his local security detachments retire behind the main line of resistance? What aid, if any, can be given the local security detachments by the weapons of the holding force in the strongpoints?

As for the terrain in front and to either flank of the line of observation, the local security detachments are interested in that because, either by observers along that line, or patrols from that line, the local security detachments must find out what the enemy is doing.

The job of the local security detachments is to watch the enemy and, if the enemy advances, give warning and possibly fight him

back more or less stoutly. They are danger alarms as well as (sometimes) shock absorbers for the holding force.

The line of observation must afford intersecting views by the sentinels of the local security detachments of the battalion and of the flank security detachment of each adjacent battalion. Such areas as cannot be observed must be combed by patrols.

Any condition that hampers observation—vegetation, smoke or night—necessitates an increase in the local security detachments. Eyes and ears not being so efficient, we must use more of them. Each commander of a local security detachment must know what changes he is to make in his dispositions for the night, and exactly what he is to do in case of attack.

After the battalion commander has completed his reconnaissance of the line to be occupied by the local security detachments he can decide on how these are to be sent out. The strength should be not to exceed one squad for each platoon on the main line of resistance. Each platoon can throw forward a squad, or the company commander can provide the local security detachments for the company as a whole, possibly by taking squads from his support platoon. Also, the battalion commander may provide the local security detachments along his whole battalion front by using a section of his reserve company.

If a battalion is in position on ground that permits observation to the front for long distances, there will be no necessity for local security detachments during the day, as the necessary security duty can be performed by sentinels posted along the main line of resistance.

c. The reconnaissance of the line to be held by the battalion reserve—the battalion reserve line. This also is the reconnaissance of an area rather than of a line. The area extends from the battalion reserve line to the main line of resistance, to either flank, as far as weapons will reach, and to the rear of the battalion reserve line, for the strongpoint or strongpoints to be organized by the reserve company will be prepared for all-round defense, and certain of the automatic functions of the battalion may have installations in rear of the battalion reserve line. Even though the battalion commander may have mentally assigned general locations to his reserve company, infantry heavy weapons, attached units and so

on, it is during this reconnaissance that prior locations are checked up on and, possibly, changed.

The company strongpoint, or platoon strongpoints, on the battalion reserve line must insure the defense of this line. The breakthrough guns on or near the battalion reserve line must be able to cross their fires in its defense, fire on the gaps between and the flanks of the strongpoints of the main line of resistance, be ready to aid the reserve company in any counterattack it may make and execute antiaircraft fire against enemy aircraft venturing anywhere near the center of resistance. In addition, it will be desirable to have these guns able to place long-range fires in front of the main line of resistance. If one part of the main line of resistance is weaker than another, the strongpoint organized by the reserve company may be placed in rear of this weak part. The light artillery should be able to place barrages closely in front of the battalion reserve line.

The infantry heavy weapons will be placed where their fires will be most effective: the 37-mm. gun can shoot flat-trajectory projectiles against located enemy automatic weapons and armored fighting vehicles, the 3-inch trench mortar can lob curved-trajectory shells into areas that cannot be reached by flat-trajectory weapons, as well as be used against enemy personnel or weapons whose general location only is known. The antitank gun must conceal itself where it can fire on enemy armored fighting vehicles should they appear. As the locations of these three weapons can be noted and fired on by the enemy they should not be placed near command posts, the aid station, or other troops.

The battalion command post should provide concealment and shelter, and be placed near or on the battalion reserve line so as to facilitate signal communication forward and back, right and left. Any groups sent out to connect with adjacent battalions would come from the battalion reserve.

The battalion aid station should be on routes that would naturally be followed by walking wounded and near a road so that the medical regiment ambulances can evacuate lying cases. Shelter, water, fuel and protection against direct small-arms fire, are desirable. It is usually in rear of the battalion reserve line.

The battalion ammunition distributing point is designated. The

ammunition section must be able to fill it from supplies provided by the regimental commander and the companies and attached units must be able to secure supplies from it.

The ammunition section, headquarters section, medical section and kitchen section of the battalion combat train will be placed by the regimental commander after they have unloaded supplies needed by the battalion. The wheeled transport of the companies and attached units (machine-gun, communication and howitzer company weapons vehicles) may also be placed by the regimental commander. The idea is to keep them out of danger and have them where they can be found when needed; which is, usually, at or near the bivouac of the battalion section of the regimental field train.

The preceding lengthy discussion goes into the plan of defense and the reconnaissance for the defense when the battalion commander has several hours available and has ground protection provided by other troops out in front. But the battalion commander will not always be so fortunately circumstanced; he may have to do all this in a few minutes only, as when he is suddenly obliged to take up a defensive attitude during an attack. In this case the same principles govern, but both the reconnaissance and the making of the plan of defense are shortened because the enemy attack may come at any moment. The considerations in connection with such a sudden change from the attack to the defense are given in Chapter Nineteen.

Some infantry battalion commanders may find themselves in the unfortunate position of any one of the battalions of the French 14th Infantry on April 24, 1918. This regiment was in the swampy valley of the Luce in front of Amiens. The front-line battalions were on a long slope running up toward the enemy, who could look down on them. The reserve battalion, separated from the assault battalions by the Luce, was on a forward slope that lay open to the enemy observers. The Germans attacked in this region, forcing back adjacent battalions on both flanks, but the well-planned, well-executed defense of the 14th Infantry battalions enabled them to hold their ground.

In some cases (a routine relief in a stabilized situation, for example) the battalion commander may be ordered to defend an

area which has been organized, even highly, for defense. In these cases, the battalion commander and his staff will inspect the already organized position with a view to moving into it and defending it. This inspection of the fruits of the reconnaissances of many prior battalion commanders is scarcely a true reconnaissance; the battalion commander merely takes over the responsibility of defending an area already organized for defense under a plan built up by one or more of his predecessors.

However, in all defensive situations, reconnaissance is constant. The battalion commander must be familiar with the positions of his units on the terrain, even if the defense has been planned, and the terrain organized, by a predecessor. Also, there is always further work that can be done to improve any existing organization of the ground.

NOTE:

The plan of the battalion machine-gun officer for the defense includes, besides the machine-gun plan, recommendations for the location of trench mortar and artillery fires desired to cover close-in avenues of approach not covered by the guns of his machine-gun company.

CHAPTER TWENTY-SIX: ORDER ISSUED BY THE BATTALION COMMANDER

A battalion commander may be required to defend either as a result of an unforeseen situation, or because his regimental commander has ordered him to defend. In either case he has built up his plan of defense during his reconnaissance as described in Chapter Twenty-five, Section II, and he must now announce his decision to his company and attached unit commanders in a field order. The manner and difficult conditions in which this order may have to be issued have been discussed in Chapter Twelve.

The units of an infantry battalion may be attacked and may have to defend without any order from the battalion commander. This might occur during the course of an attack when a strong enemy counterattack arrives unexpectedly. In such cases the commanders of the companies and smaller units will take, spontaneously, such measures as are necessary to resist. Each man, as a matter of self protection, will do his best to kill the enemy most dangerous to him and such measures frequently are sufficient to beat off the enemy. If the battalion commander has his reserve and his machine-gun units placed in depth (as he should in an attack) he has the germ of a defensive formation and can issue orders to such intact units, even if for the moment he is unable to control the other units of his battalion.

In such circumstances, what the battalion commander's orders would be will depend upon many different things. When some of his battalion units are surprised, the battalion commander has left only his unengaged units and he must use these in an endeavor to maintain his freedom of action to apply power. Whether the battalion commander reinforces his combat companies, aids them by fire, movement or both, or holds a position in order to reorganize dispersed combat companies behind it, depends on conditions. This difficulty of decision is one of the penalties inflicted upon the battalion commander for allowing himself to be surprised. But, as has been noted, each attack formation has in it the germ of a defensive formation. Writing of the Meuse-Argonne Offensive, the

commanding officer, II/30th Infantry, states: "Machine guns usually followed the assault companies in action and when the advance was held up they were immediately placed, some in line with advance elements and others at good machine-gun positions in rear, in such a manner as to be able to fire on hostile infantry and machine-gun nests and to repel possible counterattacks."

Setting aside surprise attacks by the enemy and taking up cases where necessity of straightening out the battalion or the fire of the enemy dictate a pause, we find little concerning the orders given to take care of such situations.

Of the Aisne-Marne Offensive, the commanding officer, II/28th Infantry, writes: "The assault progressed about three hundred meters east of Breuil where it was stopped by heavy fire from the front. There being no reserves left to renew the attack, a front line was established by the men digging in where they found themselves * * *. The casualties of both battalions had been so great and the line ahead was so wide that one thin front line was established," and, later, "Both battalions distributed their units in depth and organized the ground held for defense. * * * The night of July 18-19 was fairly quiet and most all of the men, excepting the outguards, secured a much needed rest." Describing th advance of July 19, he adds: "The casualties in the two battalions had cut the fighting strength down to about one hundred twenty riflemen, four machine guns and two officers. In this weakened condition it was impossible for them to continue the attack and the men were told to dig in where they were. Two machine guns were placed in the front line and two a little to the rear. A few men who had been stragglers or who had been slightly wounded were gathered up and organized into a small platoon. All the German machine guns that were in that area were turned about and manned by these men."

The statements of other battalion commanders bear out the principles brought out in these extracts: the men dig in where they are, or withdraw at dusk to a better position and dig in there; the machine guns are placed in depth, there are local security detachments and a reserve. Such orders as were issued must have been fragmentary in their nature and doubtless most of them were oral.

Under the conditions described, the orders of the battalion com-

mander will be issued to such units and in such sequence as best enable him to maintain his freedom of action to apply power: a main line of resistance must be held, and there must be a reserve to take care of unforeseen events. If in addition, local security groups can be left out, or pushed out, in front to give warning, the battalion commander will be better prepared to resist. If he can arrange for mutual support with adjacent battalions, then get up necessary ammunition, water and food, he will be fairly well prepared for a defense. Any written or oral orders that cause his company and attached units to do the above will be sufficient for the time being.

Admitting that in many cases the field order for defense will be issued not as a complete whole, but fragmentarily in messages to commanders of companies and attached units, let us examine these fragmentary orders. In discussing them we can logically consider them under the headings under which they would be placed if they were consolidated into a formal field order. Not all units mentioned may be with the battalion; the references cover their jobs if they are present.

Paragraph 1 contains information of the enemy and of friendly supporting troops as known to the battalion commander.

In the case in which the battalion is already in battle and takes up a defense, the company and attached unit commanders, particularly those of the combat companies, will have personal experience of where the enemy is located and what it is doing. As a result of his intelligence functions, the battalion commander will have assembled, and from time to time distributed to the company and attached unit commanders, all that he knows of the enemy's whereabouts, activities and intentions. It is more than likely that all in the battalion know that such and such an artillery unit is in support—they will have been working with it. But if there is a change in battery positions which would perhaps mean temporary cessation of fire, or if more artillery is to be available for support, all would want such information. If, or as soon as, the battalion commander knows where the artillery's defensive barrages are to fall, he will announce the exact area or areas, as well as the pyrotechnic and other means of calling down such barrages. What adjacent battalions will do in the way of providing flanking fires

will be announced. Aid to be given by any other supporting units will also be announced.

We may be certain that the battalion commander always knows a little more about the situation than do his company and attached unit commanders, for he sees the battalion front as a whole and he may have received information from the adjacent battalions, the regimental commander and the infantry airplane. If the battalion commander has information that should be communicated to his company and attached unit commanders, he would make it a part of his order to them.

If the battalion is preparing for defense under the protection of friendly troops out in front, the battalion commander would have to completely inform the commanders of companies and attached units concerning the enemy and the supporting troops of the battalion.

Paragraph 2 contains the general plan of defense of the battalion commander.

In this paragraph the battalion commander gives his plan of defense (this plan of defense is mostly by fire and little by movement) as built up by him during his reconnaissance.

The battalion is a complex organization and it cannot develop its full powers unless each company and attached unit commander knows how he is to play his particular part in the battalion considered as a whole. The battalion defense is built up of units arranged in depth and in width. In order to inform the company and attached unit commanders of the depth arrangement, the battalion commander must announce the main line of resistance, the line to be occupied by the local security detachments out in front of the main line of resistance and the battalion reserve line in rear of the main line of resistance. In order to show the width arrangement to the commanders of the company and attached units the battalion commander must announce the limiting points upon these three lines.

Paragraph 3 contains the detailed instructions to company and attached unit commanders to carry out the plan of defense outlined in Paragraph 2.

From the information given under Paragraph 2, company and attached unit commanders can visualize the plan as a whole, but,

for example, the commanders of rifle companies do not know what part they will be called upon to take; their company may be one of the companies assigned strongpoints on the main line of resistance or may be placed as battalion reserve, while part of it may be placed in the local security detachment. Furthermore, until the strongpoint commanders are actually on the ground, they cannot tell how they can adjust the fires of their units. And until the locations of the strongpoints on the main line of resistance are announced the commander of the machine-gun company will not be able to place his machine-gun sections. The battalion comprises a number of organic and attached units and in order that the task of each be clearly defined, a separate sub-paragraph is devoted to each unit.

For example:

3. a. Company A will hold the right strongpoint (describing its limits on the main line of resistance and giving a rear line—the support line; or stating that the limits are taped, or that men are posted as markers on the general location). (If the local security detachments are to come from each combat company, the strength of these and the limits of the line of local security detachments to be constituted by them would be announced.)

b. Company B * * * (similar instructions).

(Each commander of a combat company must know where adjacent company strongpoints are to be placed so that he can arrange to cover spaces between strongpoints and arrange for mutually flanking fires.)

c. Company C, reserve, will hold the strongpoint (defining it) on the battalion reserve line. (The reserve company may be designated to furnish the local security detachments and possibly, also, the connecting groups to either flank.)

(It must be remembered that the local security detachments, whether they come from all the combat companies or from the reserve, must be told what they are to do, i.e., give warning and retire; give warning and retire, disputing the ground; give warning and hold for a specific time, or, give warning and hold indefinitely. The commanders of

the local security detachments should always give warning, but unless the battalion commander specifies their subsequent action, they will not be able to perform their part in the defense as a whole.)

d. The machine-gun company will place its sections in width and depth so as to produce intersecting bands of fire along fronts and flanks of the strongpoints of the main line of resistance. So many sections (one-third, as a rule) will be placed near the battalion reserve line.

(The exact placing of these sections can be left to the commander of the machine-gun company, who is something of a specialist and can select exact positions after getting on the ground and seeing where the strongpoints are to be organized. The sections toward the rear will prepare also for antiaircraft fire.)

e. The 37-mm. gun, from a position near (such a place) will prepare fires against enemy armored fighting vehicles and other targets in the sector: (defining sector). The 3-inch trench mortar, from a position near (such a place) will prepare fires upon targets in areas: (defining areas).

(The commander of this platoon is something of a specialist and the exact siting of his weapons can be left to him. The battalion commander, wanting to know generally where they are, will give only general sites for these weapons.)

f. The detachment of engineers will execute (describing work; for example, prepare a command post or an observation post).

g. The detachment of chemical troops will prepare to execute (describing job).

h. The detachments of (naming any non-battalion units attached for labor) will clear fields of fire, construct obstacles for (naming strongpoints).

i. Instructions for certain rifle companies to provide connecting groups (size of group, place to go, and unit to connect with).

x. Instructions for all personnel: how the gas masks will be worn; what arms and equipment are to be carried by labor

parties and to whom they will report in case of attack; priority of work in digging in.

Paragraph 4 contains instructions concerning the automatic functions of supply and evacuation.

A battalion ammunition distributing point where the companies and attached units can secure ammunition, a battalion aid station where casualties are cared for, and the place to which the water vehicles and kitchens will come are designated.

Paragraph 5 contains instructions concerning the automatic function of signal communication. The place of the battalion command post will be announced. Places for the company and attached unit command posts may be announced.

The orders heretofore discussed in this chapter would suffice to start the battalion on the job of preparing for the defense. The battalion commander will constantly study his problem and from time to time issue orders with a view to further improving the defense. In order that his company and attached unit commanders may know the situation, the battalion commander will give them the information and orders necessary. These will be given interested parties in such sequence as best enables the battalion commander to maintain his freedom of action to apply power. As soon as practicable (if time permits) these fragmentary orders will be consolidated into the usual five-paragraph order. Having issued orders to his company and attached unit commanders, the battalion commander can now more fully go into the aid he is to receive from organizations outside the battalion: the light artillery, adjacent battalions and so on.

Finally, it should be clearly understood that every time a battalion commander takes up a defense he does not do so with the idea that he will remain on the defensive and improve his organization of the ground until it approaches that characteristic of the western front of the World War. He does his best with the information, personnel, material and time available. After starting to take up a defense, even a short time thereafter, the battalion commander may receive an order to attack. This would be a marked change of mission; the frequency of occurrence of these marked changes is one characteristic of battalion combat that shows the many requirements necessary in the battalion commander. These

facts must be taken into consideration by the battalion commander in his field order which, as has been noted, may be oral, issued fragmentarily, and void of details.

CHAPTER TWENTY-SEVEN: MOVING INTO POSITION

If the infantry battalion is within range of fire by the enemy, movement will be best accomplished when the enemy is unable to observe it. Lights, smoking and talking may have to be repressed. Conformation of the terrain, vegetation, alteration, existence of fog or (a future possibility) production of smoke, may enable us to move in daylight; the approach of night usually enables infantry that has been pinned to the ground during the day to change position. Visibility conditions and battlefield confusion may necessitate that guides be posted to mark the new locations of units, and staff officers may have to be used to guide units to their positions. These measures will be particularly advisable if maps are unavailable or if the terrain is unrecognizable.

When the battalion commander is required to take up a defensive attitude during the course of an attack, his attack formation contains the germ of a defensive formation; i.e., he has assault companies in front, his machine-gun company is distributed in depth, his reserve company and attached units are toward the rear of his formation. This formation in depth enables him to move his rear elements with comparative freedom and may allow him to move parts of his combat companies to places more suitable for defense. Frequently it will be necessary to wait for dusk before making such movements.

When the battalion commander is required to take up a defense unexpectedly there may be little or no movement of his battalion; it will defend the area on which it finds itself. The men hold on where they are; the local security detachments may be no more than groups of two or three men a very few yards to the front; such short movements as are necessary to give him more freedom of action are ordered by the battalion commander from time to time as the situation permits. The commanding officer, I/116th Infantry, writes of the Meuse-Argonne Offensive: "Here the battalion came under its own artillery fire and was a considerable distance ahead of the French on our right. The battalion com-

mander directed companies to withdraw to positions on high ground overlooking the Ravin de Borveaux to avoid unnecessary casualties and to effect liaison with the French, whose advance had been definitely halted by heavy artillery fire." On the following morning, October 9, the Germans counterattacked. "The brunt of this counterattack fell heavily on the 1st Battalion, the enemy having gained the ravine and placed machine guns under cover during the fog; however, our riflemen, from the high ground on this side of the ravine did excellent work. The attack was repulsed, many prisoners and machine guns being taken." Of October 26, he adds: "The front line of each company consisted of several two-man rifle pits, then a line of resistance of one platoon of each company and the support line of Company D (fourth rifle company)."

When a battalion commander has to relieve another battalion which is carrying on a defense, his problem is much simplified. The battalion commander who is to be relieved knows the terrain, has already issued his order and is occupying the terrain. In other words the incoming battalion commander has merely to take over the defense as already planned by the outgoing battalion commander: his combat companies replace the outgoing combat companies; his machine-gun company takes over the positions occupied by the outgoing machine-gun company; his reserve replaces the outgoing reserve, and so on. The relieving of a battalion already defending against an enemy implies that ground security is fairly complete; it is never entirely so. There are few tactical considerations in such a relief; if the incoming battalion commander spreads out his units so as to avoid artillery and air missiles (as in the later stages of the approach march) and assures himself against any failures of the ground security that is provided by the outgoing battalion, he should make the relief without much difficulty. When a relief is being made of a battalion that holds a highly organized position, and time is available, moving in extends over several nights and becomes merely a routine march, the details of which are ordered by a higher commander. The observers, signal communication personnel and some machine guns would be moved in first in a case of this sort.

But a battalion commander should always maintain silent skepticism regarding local security measures provided by other troops,

for these other troops may be withdrawn and they may fail to inform the battalion commander that they are leaving. The battalion commander will be well advised to place small local security detachments on the proper lines as determined by his reconnaissance; if troops of other organizations are there, so much the better; if they are not there, or depart, the battalion commander will be rendered secure by his own local security detachments.

With his local security detachments moving out, or placed, in front of him, the battalion commander can bring up his troops and trains in approach formations and move into his assigned area.

Under any conditions of moving into position it is possible that an attack will be experienced during the course of the relief. If this occurs, units caught in the open should seek the nearest cover, report their whereabouts to their battalion commander and to the unit which they were to relieve. The commander of the outgoing battalion would retain command until the emergency is over.

Whatever the situation, the regimental commander will want to know when the relief has been completed. The battalion commander must remember that the relief is not completed until he is in touch with adjacent battalions.

Our ingoing battalion commander may believe that he can make better arrangements for defense, but for the time being he must be content merely to relieve the outgoing battalion. Later he may submit a new plan of defense to his regimental commander, who will be able to combine this new plan with those of adjacent battalions, should such change be desirable.

CHAPTER TWENTY-EIGHT: PREPARING THE DEFENSE

I–General consideration of the defense; II–Battalion commander's first activities; III–Local security detachments; IV–Holding force; V–Machine-gun company; VI–Attached units; VII–Battalion reserve; VIII–Battalion commander's further activities.

I: GENERAL CONSIDERATION OF THE DEFENSE

Defense is largely by fire and defending fire requires protection or concealment, both if practicable. In years gone by, protection was secured by raising breastworks above the ground, a procedure still employed in swampy or wooded terrain. Better protection and some degree of concealment is secured by digging trenches. In peace-time the infantryman dislikes digging; on the battlefield he is industrious as a mole.

In 1914 the infantry battalion crowded all its weapons—mostly rifles—into a single trench and made its resistance there. Concentrations of artillery fire enabled the enemy to smash this trench and its defenders, so several trenches, one behind another, were put in. Each of these trenches, in succession, was defended as the enemy infantry came on. The battalion could spread out its personnel in this way because increase in the number of automatic weapons enabled a smaller number of men to produce a greater amount of fire power. But the enemy artillery soon was able to smash all these trenches and the automatic weapons in them, so the machine guns were taken out of the trenches themselves and placed so that they could develop their full powers by laying down intersecting bands of fire in front of the main line of resistance. Thus the defense of an area has been largely divorced from the mere holding of a trench, though the latter, with the communication trench, remains a useful thing for the daily life in sector. This echeloning of weapons with the object of producing an impassable sleet of fire in front of the main line of resistance is the

essence of the defense in depth; the protecting, concealing trenches are desirable if we can have them too. Recalling the comparison of the defense to that of a coiled adder, we may be sure that the better sited and camouflaged are our trenches, the less is the chance that they will be located by the enemy artillery. Conformation, vegetation and alteration of the terrain must be considered in siting trenches. Dummy trenches on which the enemy can waste ammunition may help. Needless to say, all work that changes normal appearance of the terrain to enemy ground or air observation should be camouflaged, though the enemy frequently will find something, however careful we may be. In a new position, movement should be avoided during daylight; old positions are usually known to the enemy. Extensive trench systems cannot be concealed from the enemy, but the enemy may be unable to discover what particular positions are to be occupied in case of attack.

As soon as the companies and attached units of the battalion get to their assigned places they start preparing for the defense.

The job of the battalion commander is to do everything he can with the personnel, material and time available to prepare the defense of the area confided to him. Someone has remarked that trench warfare can be started in fifteen minutes; labor, material and time are all that are needed to convert a few fox holes into most scientifically constructed and armed field works. In any case, the question is always: "What shall be done first?" Right here we must remember that the main line of resistance is the backbone of the defense; all preparation of the area to be defended relates to the main line of resistance. All fires of the companies and attached units of the battalion must be combined and concentrated in front of the main line of resistance to break up the hostile attack. Furthermore, and this is particularly important to the infantry battalion commander, the efficacy of the protective fires of the light artillery depends upon the knowledge the artillery has of the exact trace of the main line of resistance.

Study of defense brings out the fact that in the general case, assuming that all units are at work, priority of work in preparing for defense should be as follows:

Reasonable field of fire (at least one hundred yards if practicable).

Fox holes or squad trenches for main line of resistance and support line.

Machine-gun, 37-mm. gun and 3-inch trench mortar emplacements.

Tactical obstacles along the front to hold the attacker under the defenders' fires.

Observation posts.

Command posts and aid stations.

Protective obstacles around combat posts on main line of resistance to prevent the sudden entrance of the attackers into the defenders' works.

Communication trenches forming part of defensive organization between main line of resistance and support line.

Completion of trench system in strongpoints on main line of resistance.

Completion of protective obstacles for strongpoints on main line of resistance.

Fire trenches on battalion reserve line.

Communication trenches in rear of support lines.

Completion of trench system on main line of resistance and support lines.

Protective obstacles for strongpoints in rear of main line of resistance.

Improvement of command posts, observation posts and aid station.

Improvement of routes of communication within the center of resistance.

Desirable as it would be to do all of this, it is easy to see that a hasty preparation of the area for defense will have to be much less complete; but, for such hasty preparation, the priority stated holds good, for the first four items require that observation and fire be prepared first. The rest, all desirable, will be done later if practicable.

It has been noted that the battalion defends largely by fire and that preparation of the defense is highly centralized in the battalion commander. While this requires the battalion commander to carefully supervise the organizing of the centers of resistance as determined during his reconnaissance and announced in his order,

promptness in execution of the work requires that he decentralize the work by turning it over to the commanders of the companies and attached units.

The prime consideration is the holding of the main line of resistance. With this in mind, the battalion commander "insures that the several combat emplacements of the rifle companies and machine guns are so located and constructed that no dead space exists in the field of fire, that the emplacements mutually protect the flanks of each other, and that they can deliver flanking fire across the fronts of the adjacent groups." Conferences with the commanders of the combat companies and machine-gun company may be necessary before digging commences. If no maps are available, or if the terrain is unrecognizable, it may be necessary to post men on, or stake out or tape the position to be organized.

A modern defense requires exact combination of fires; exact combination of fires and promptness in digging in require that no labor be lost. These considerations demand that the battalion commander see to it that work in preparing for defense has *a correct start*. In the following sections we shall try to describe how the battalion commander assures that things are started correctly, and, at the same time, bring out the reasons why such supervision is necessary.

NOTES:

1. The regulations state that a well-balanced, hasty defense can be organized in six hours from the time the men are on the ground ready to dig, using engineer (large size) tools in daylight on medium ground and with no interference by the enemy.

2. A battalion observation post requires about fifteen man hours of work; a battalion command post requires about seventy-five man hours; a battalion aid station requires about seventy-five man hours.

II: BATTALION COMMANDER'S FIRST ACTIVITIES

Automatic Functions. The order of the battalion commander for the defense gives sufficient data for the staff officers concerned to carry on with their jobs. The adjutant (S-1) can set up the command post, while the communications officer connects the command post with the companies and attached units, the observation

posts and adjacent units. All means of signal communications should be installed including pyrotechnics, lamps and pigeons; these last are particularly useful in a defense. In a defense, the regimental commander intervenes in the signal communications system of the battalion, for the old field service regulations state: "He insures the establishment of pyrotechnic signal communications from the front line to the supporting artillery." In a defense there are usually more time and more material available for installing signal communications than in an attack.

The surgeon can set up his aid station and the supply officer (S-4) can bring up ammunition, water and food. If the engineer tool vehicle has been turned over to the battalion or if engineer material (wire, pickets, etc.) is given the battalion, the supply officer will bring it up. The large size tools carried in this vehicle will speed the work of digging in (Chapter Four, Section V). Supplying at night will aid in preserving secrecy.

Intelligence functions. The order of the battalion commander for the defense gives sufficient data for the intelligence officer (S-2) to carry on with his job. The reconnaissance of the local security detachments (including patrols and night listening posts) and the functioning of the battalion observation posts must be assured, as well as arrangements with adjacent battalion commanders and the regimental commander for exchange of information. Connecting groups or periodic patrols should keep the battalion in touch with adjacent battalions. Writing of the Marne Defensive of 1918, a battalion commander states: "As an additional means of communication the reserve battalion sent several runners to report to the French battalion on the right. These runners were instructed to bring any news of importance to the battalion commander. As it turned out, these runners were especially valuable as they brought the news, late in the day on July 15, of the French whereabouts and enabled the 38th to regain contact with them near Janvier Farm."

The regimental commander may select the best site in the battalion area for his own observation post.

If the situation is uncertain the battalion commander may order sentinels to be put out by each strongpoint or even by each combat group.

Operations functions. The order of the battalion commander for

the defense gives sufficient data for the plans and training officer (S-3) to carry on with his job of keeping an eye on what the commanders of the companies and attached units are doing. As has been noted, putting into effect the plan of defense is highly centralized in the battalion commander, but prompt execution of such work as can be done in the time available requires that the different jobs of work be promptly decentralized to the commanders of the companies and attached units.

However, the battalion commander is responsible for the defense. Now, this defense is built up primarily along the main line of resistance and the supporting light artillery can give powerful aid to the infantry battalion in holding this main line of resistance. As an important part of his plan of defense, the infantry battalion commander selected the main line of resistance in so far as selection of it had been left to him; now he must assure himself that all units concerned arrange to cover the space in front of that line with their fires. The old field service regulations stated: "Exact information as to the trace of the main line of resistance is furnished to the artillery." In the early stages of preparing for defense, we may believe that the battalion commander cannot be too prompt in reporting the *exact trace*. If the terrain is unmapped, unrecognizable, if it is at night, in smoke or fog, this will be difficult. The artillery liaison officer or an artillery observer may be reduced to adjusting fires in front of the main line of resistance; such a method would require that local security detachments in front be withdrawn unless they are very far out.

It is possible that light artillery can give further aid by delivering barrage fires in the intervals between strongpoints, barrage fires in front of the battalion reserve line, as well as fires to aid in any counterattack made by the battalion reserve. After the battalion commander has arranged for the barrage fires in front of his main line of resistance, he can, as opportunity offers, consider these latter two kinds of fires. The artillery liaison officer should be of great assistance in arranging for these fires, and the light-artillery commander himself should come up to see what is required.

The inner edge of the barrage fires of light artillery cannot be placed closer than two hundred yards from our combat companies; the weapons of the companies and attached units must fill in any

gaps. More frequently than not, the rear edges of these barrage fires will be considerably farther in front of the combat companies than two hundred yards.

The machine-gun officer should be able to place promptly the machine-gun sections so as to carry out the battalion commander's plan of defense. The latter may expect that the division machine-gun officer and the regimental commander will limit his own freedom of action by requiring that certain sections be placed so as to aid adjacent battalions with their fires. The commanders of the combat companies and attached units must place their weapons so as to do their utmost in increasing the fires in front of the main line of resistance. When all the fires have been adjusted to the terrain the battalion commander will send a sketch of them to the regimental commander for his approval.

If there is material available for artificial obstacles, these cannot be placed until the flanking fires of the defense are arranged; this is an additional reason for promptly arranging the fires of the companies of the battalion.

Should the battalion commander expect the enemy to attack soon, labor of the reserve units may be of more value in clearing the field of fire in front of the main line of resistance than in preparing strongpoints on the battalion reserve line. Any engineer troops attached to the battalion would be employed first in preparing the main line of resistance for defense. As there may be an attack while working parties are out, all organic and attached units should be armed and equipped, as well as have orders what to do in case of attack. They would probably be best disposed of if they have orders to report to the nearest infantry officer holding a position.

All elements of the defense should be at their battle posts a half-hour before dawn and again a half-hour before dusk; while attacks may be expected at these hours they may come during broad daylight. During "stand to" all digging and other noise should cease.

III: LOCAL SECURITY DETACHMENTS

If the battalion commander has to take up a defense hurriedly during the course of an attack, the local security detachments will consist of certain units of the assault companies left in close contact

with the enemy, while the remainder of these assault (now become "combat") companies are moved to occupy and prepare the area to be defended. If the defense is taken up under less awkward conditions, the battalion commander can detail detachments either from his reserve or from one or all of the combat companies, to occupy the line of observation determined upon during his reconnaissance.

The job of the local security detachments is to aid the holding force. The aid they can give will vary greatly according to the situation. If the local security detachments can give the battalion commander warning of when and where the enemy will attack, the battalion commander can employ the remainder of the battalion in organizing his center of resistance until the warning comes. If, in addition to warning the battalion commander of impending attack, the local security detachments can delay such attack, it will allow the battalion commander further freedom of action to apply power.

The handling of the local security detachments is rather complicated. Any fires of the supporting artillery in front of the main line of resistance, either for adjustment or for effect, are a source of danger to the local security detachments. The commanders of the local security detachments must do their utmost to determine any attack of the enemy, for, by securing such information, they are best enabled to get their detachment back of the main line of resistance before any barrage fires are put down by the light artillery of the defense, in addition to warning the battalion commander of the coming attack.

The scattered local security detachments can dig themselves in as a means of protection, but their principal duty does not require much, if any, organization of the ground. The battalion commander must assure himself that the commanders of his flank local security detachments are in touch with the flank local security detachments of adjacent battalions.

It is sometimes possible to illuminate the foreground by fires and flares. As local security detachments may be seen by the enemy during the day, it is advisable that they change to a new place for the night; such a change may save them from being picked up by an enemy raiding party.

The local security detachments may be charged with the duty of calling down artillery fires (counterpreparation) on hostile preparations for attack. They might have to use pyrotechnics for this purpose.

IV: HOLDING FORCE

The battalion commander must closely supervise the preparations of the holding force, which consists principally of the combat companies and units of the machine-gun company. The job of the battalion commander is to see that their fires are combined so as to produce an impassable sleet of bullets along the front of the main line of resistance. The commanders of these companies are competent to fit the fires of their weapons to the terrain, but it is the battalion commander only who has the authority necessary to insure that the combat companies help out each other and that the machine-gun company commander aids all the combat companies.

The commander of each combat company, once given the trace of the main line of resistance and the general location on it of his strongpoint, can put one or more platoons on the main line of resistance and the remaining platoons on the support line so as to hold the strongpoint against attack from front, flank or rear, and restore the main line of resistance if it is broken. But it is natural that they may forget to place units to produce fires in front of adjacent strongpoints or to cover gaps between their strongpoints and the adjacent ones. This is where the battalion commander must step in.

The commanders of the combat companies must remember that the near edge of any barrage fires the light artillery may give the battalion is not closer than two hundred yards to the main line of resistance; often it will be much farther out than two hundred yards.

Any units, reserve or otherwise, working at clearing the field of fire, will have to be similarly supervised by the battalion commander lest the strongpoint commanders forget the necessity of such clearing as will enable their companies to help out adjacent strongpoints. Likewise for obstacles, if time, material and labor are available: the combat company commander in each strongpoint may be counted upon to wire himself in protectively, but tactical

wiring between the adjacent strongpoints will have to be supervised by the battalion commander.

Tactical obstacles have the object of forcing the enemy into areas where they can be fired on most effectively; protective obstacles are to keep the enemy out of our trenches. Engineer detachments are prompt in putting in good obstacles; the infantry commanders will have to tell them where the obstacles will do the most good.

When the area assigned as a strongpoint includes buildings of materials that will stop rifle bullets, they may be hurriedly organized for defense. As a rule, however, buildings make an excellent target for enemy artillery and are a source of danger from splinters and fragments.

V: MACHINE-GUN COMPANY

The commander, something of a specialist, knows how to apply the cones of trajectories of his machine-gun sections to the terrain. As a rough rule, two-thirds of the sections must be placed so as to produce intersecting bands of fire along the fronts and flanks of the strongpoints on the main line of resistance. The remaining one-third of the sections will be placed on or near the battalion reserve line as break-through guns. The break-through guns must be able to place bands of fire along the flanks of the strongpoints, in front of them if practicable, and be able to fire on any of the enemy who may filter into the gaps between the strongpoints. They must be able, also, to place fires on the strongpoints in case these are captured by the enemy. If all the sections can also execute frontal fires well in advance of the main line of resistance, so much the better. A few sections toward the rear must be prepared for antiaircraft fire, preferably from concealed positions.

An experienced battalion machine-gun officer, himself, should be able to put in his sections as the battalion commander would want them placed, but however much liberty he is given in placing them, the battalion commander remains responsible that the job is done.

When attacked, the habitual reaction of man is to shoot straight to the front. This is what allows the enemy to infiltrate. Quality of training, placing of sections so that they can execute *only* the desired fires, and staggering sections in depth all help in assuring

that the various avenues of approach of the enemy will be swept with fires. If, also, wire can be placed so as to hold the attacking enemy under machine-gun fire, the defense will be very strong. The machine-gun sections will need a few riflemen for their local protection and to give any aid necessary to keep the guns in operation.

The battalion commander may expect that the regimental and division commanders frequently will require him to produce certain machine-gun fires for the benefit of adjacent battalions and the defense as a whole. The regimental commander may specify the places and the number of the rearward sections that are to execute antiaircraft fire.

NOTE:

The four extra machine guns in the equipment of each rifle company must not be forgotten. They probably can be manned by the ammunition carriers of the platoons, for, in a defense, ammunition is accumulated in advance at the guns. Men of the rifle companies themselves could man these machine guns.

VI: ATTACHED UNITS

The battalion commander may have attached a platoon of the regimental howitzer company, the pioneer platoon, a chemical platoon, an engineer detachment.

The commanders of these units know the powers and limitations of their units. In general, the 37-mm. gun can be used against enemy machine guns and armored fighting vehicles; the 3-inch trench mortar can scour out depressions occupied by enemy troops or weapons which flat-trajectory fire would have difficulty in reaching; there will have to be alternate positions for both of these weapons. In order to assure control, the battalion commander gives these units general locations, and tells them what they are to do, leaving the details to be arranged by their commanders. A chemical-troops detachment can put down projectiles of different sorts and may be able to blind attackers by producing smoke screens. The pioneer platoon or an engineer detachment can do wiring and commence splinter-proof observation and command posts.

VII: BATTALION RESERVE

The battalion reserve consists of such rifle companies as are not assigned strongpoints on the main line of resistance. Like the companies in the strongpoints on the main line of resistance, the reserve acts principally by fire. Placed on or near the battalion reserve line, where it prepares positions, the reserve should be able to bring its weapons to bear in covering the intervals between the strongpoints on the main line of resistance and thus limit any enemy penetration. Its operations are aided by the fires of the break-through machine guns, the infantry heavy weapons, other attached units and such light artillery as can be brought into use. Occasionally, under exceptionally promising conditions, the reserve may counterattack.

As the holding of the main line of resistance is the prime consideration, the reserve may be used to expedite work upon that line before it commences its own digging in on the battalion reserve line.

The necessity of specific counterattacks should be foreseen and reconnaissances should be made for moving the reserve into place on a line of departure, as well as of the terrain over which the counterattacking troops will advance. Like other attacks, a counterattack promises most success if it has the aid of supporting fires and if it surprises the enemy.

VIII: BATTALION COMMANDER'S FURTHER ACTIVITIES

The preparations for defense described in the preceding sections of this chapter can be started by all concerned in a matter of an hour or so. The functions of the battalion commander, automatic, intelligence and particularly operations, have been discussed at length with the idea of bringing out the fact that these things must be *started correctly* in order that no time and labor be wasted on improperly located tasks. How long the battalion will be left in its center of resistance depends on orders of the regimental commander; when or how it will be subjected to attack depends upon the enemy.

The life of the battalion commander becomes an effort to improve the preparations he has commenced, and to increase the well-

being of his companies and attached units. This will require many inspections of the companies and attached units, as well as conferences with the regimental commander and the commanders of adjacent battalions. This can be taken up under the headings of automatic, intelligence and operations functions.

Automatic functions. The commanders of companies and attached units will promptly report needs in ammunition, water and food. The battalion commander may have to see that reserves of these supplies are given to them; an extra ammunition section load of ammunition should be dumped at the positions. Details necessary to push forward supplies should come from reserves. The battalion commander will assure himself that care and evacuation of casualties and the necessary sanitary measures are arranged. Defiladed roads and trails should be sign-posted. Effectiveness of all means of signal communication must be verified; plentiful supplies of pyrotechnics for calling down barrage fires must be provided. At night, pyrotechnics may have to be depended upon to a great extent. The infantry regiment commander is required to assure himself that the combat companies of the battalion are provided with pyrotechnics; he is also responsible that signal communication is maintained from his regimental command post forward to the infantry battalion command post. The artillery liaison officer is responsible for maintaining signal communication from his post at the infantry battalion back to the supporting light artillery.

Intelligence functions. Assisted by his intelligence officer, the battalion commander constantly accumulates all the information he can. He is charged with using his own units to secure information and he may have information given him by adjacent battalion commanders and the regimental commander. Writing of the Aisne-Marne Defensive, the commanding officer, I/30th Infantry, states: "At 11:40 p.m., July 14, 1918, a message was received at 3d Division headquarters from the French XXXVIII Corps which stated: 'Prisoners taken early this morning by a patrol from a division far to our right state the German attack will be delivered early tomorrow morning.' * * * The fact that the American artillery was able to get into action ten minutes before that of the Germans had a very demoralizing effect upon the German units which were assembling to cross the river."

The battalion commander should endeavor to ascertain not only when but also where the attack will come. This information is desirable not only as regards what use he can make of it in connection with his companies and attached units, but also for the supporting artilleries, both light and heavy. With advance information, our artillery can put down a counterpreparation that may wreck the enemy attack before it can get under way. Observers must be placed so that their views intersect; when atmospheric conditions or night hamper visibility, dependence must be placed largely upon listening and patrolling. Movements of patrols along the front of the center of resistance may draw fire from enemy or friend; everyone in the front lines must know where and when friendly patrols are to operate. Only the battalion commander can take care of this matter. Colored lights can be sent up periodically to guide back any lost patrols.

Local security detachments are sometimes pushed forward at night, sometimes they are drawn back; varying terrains in front of the main line of resistance present different problems. The battalion commander must inform the local security detachments of lanes whereby they can withdraw to the main line of resistance, safe from any fire delivered from that line against an attacking enemy.

Deserters from the enemy have been known to bring in valuable information of enemy intentions; their reception in the advanced lines must be arranged. Small raids may be ordered by the battalion commander himself; higher commanders may direct him to prepare a raid with or without artillery support. Information gained by the battalion commander must be promptly distributed to his company, attached unit, adjacent unit and higher commanders.

The line of local security detachments does not insure security; the battalion commander must see that sentinels are placed in strongpoints, even in each combat group if he thinks it necessary.

During the World War, No Man's Land was supposed to be carefully watched, yet the author of *The Cannoneers Have Hairy Ears* tells a story of a German who deserted, waited in vain for an American patrol to pick him up, then put on an American coat and helmet, came into our lines and bought cigarettes at a canteen. Later, realizing that he was in danger of being considered a spy,

he returned to No Man's Land, discarded the American equipment and later found an American patrol to which he surrendered. This occurred in a fairly quiet sector.

Operations functions. Work in the organizing of a center of resistance goes on continuously; reliefs are arranged. Fatigue, ration and other details are sometimes taken from front-line battalions by higher commanders. The commanding officer, I/30th Infantry, writes of the Marne Defensive: "The units within the regimental sector were very nearly full strength. However, the effective strength of the front battalion (I/30th Infantry) was reduced very greatly at the time of the attack, because several details (food, fatigue and billeting) were absent. * * * The food and fatigue details together employed about three hundred fifty men, reducing the effective strength of Companies A, K and D by about forty-six per cent—nearly half. In addition to these two details, a billeting party consisting of four officers and several noncommissioned officers had been sent to Courboin * * *." A battalion commander is entitled to have his men at their posts in case of attack; orders of higher authority should not call upon commanders, particularly front-line battalion commanders, to send details for the performance of routine duties; the attack mentioned was not a surprise attack.

The defense has the great advantage of being able to plan and rehearse. In order that companies and attached units may have practice in getting to their posts, frequent alerts are ordered. These sometimes give poor results in numbers of men present and time consumed in getting into place. Tree blazes, whitewashed stones and wire will help indicate routes during darkness.

Fires of the light artillery for adjustment or effect in barrage endanger any local security detachment in front of the main line of resistance. The battalion commander will endeavor to withhold a call for barrage fire until his local security detachments are drawn back; barrages put down by higher commanders may catch the local security detachments before they can be withdrawn.

Along a certain American front in 1918, all battalion commanders except one complained that our barrage was falling on their men. The exception reported that our barrage was properly ad-

justed; he was exempt from the not infrequent infantry opinion that our artillery was firing short.

Many unjustifiable calls for barrage fire are objectionable; they exhaust the ammunition of the light artillery; give away the positions of the batteries and enable the enemy to note where these barrages fall.

The question of calling down artillery fires requires study and the issuing of definite orders. The old field service regulations stated: "Outguards (local security detachments) send up prescribed light signals for artillery support in case assembly of hostile troops for attack is discovered." In another place they stated: "In case the enemy succeeds in launching his attack in spite of the counterpreparation, barrage fire is placed close in front of the advanced infantry," and, again: "Counterpreparation and barrage fire is released either on report by artillery observers or balloons of the development of a hostile attack, or on request of airplanes or the infantry." These infantry commanders may be battalion, regimental or brigade commanders and the division commander himself may order barrages. With all these individuals competent to call down fires, the necessity of holding the main line of resistance and the desirability of withdrawing local security detachments before the barrages come down, enough is brought out to indicate the difficult problem that can be solved only by the battalion commander.

When shall the machine guns switch their fires to establish the final protective line? The machine-gun sections are pretty well scattered and signal communications may be ruptured. The regulations state that the machine-gun sections switch their fires in response to:

a. a specified pyrotechnic signal;
b. a request from the commander of troops holding the position (might be a corporal or sergeant);
c. orders from platoon or higher commander;
d. the results of their own observation of the necessity for such fires.

This is enough to indicate that the battalion commander has a problem similar to that of artillery fires, though it is less difficult of solution.

If our means of defense are to surprise the enemy, we must con-

ceal them from him. Advantage is taken of vegetation and alteration to conceal our preparations; camouflaging is resorted to in order to reduce abnormality of appearance to enemy ground and air observers. The particular emplacements from which we intend to use the various weapons of the battalion in case of attack may well remain silent until attack comes; if we have several emplacements for each group of defenders, the enemy will not know which one is to be occupied by us in case of attack. Bayonets or other shiny equipment may give away a position if there is sufficient light. Fires and smokes from unoccupied places may deceive the enemy as to our organization for defense.

Organizing the defense in depth is an admission that enemy infantry may filter in between strongpoints and combat groups. These will never be fully prepared for the defense until they are able to defend to the rear as well as to the front and flanks; it takes a good deal of time to put in pickets and wire.

For convenience in patrolling in front of the main line of resistance, gaps are intentionally left in the wire; it frequently happens that arrangements for closing these gaps in case of attack are not carried into effect.

Any counterattacks to be made by the battalion reserve must be decided upon; reconnaissance by all concerned in the fire and movement of the counterattacks must be carried out.

It is during the second and following days of occupation of a center of resistance that the battalion commander can go over the support line and battalion reserve line more carefully, making such changes as will enable their garrisons to better aid units to their front and flanks. Minor changes in the locations of the combat groups of the combat companies can be made. The machine-gun sections must take care of areas that cannot be beaten by the light artillery, the automatic rifles must take care of the areas that cannot be swept by the machine guns, rifles must take care of areas that cannot be peppered by the automatic rifles; the 3-inch trench mortar, the rifle grenade and the hand grenade must clear out any areas that the flat-trajectory weapons cannot reach.

The battalion commander can never do too much to insure proper action on the part of all coöperating in defense under the handicaps of darkness and rupture of signal communications.

Writing of the sector warfare just before the capture of Vaux

on July 1, 1918, the commander of Company F of the II/9th Infantry says: "German occupation of Hill 204, which commanded a view of all the surrounding country, and German control of the air made concealment during daylight hours imperative. The regular schedule called for 'limited circulation and maximum concealment during the day.' Patrol encounters and an exchange of artillery, machine-gun and rifle fire were the nightly program. The days were quiet and peaceful. It was then difficult to observe any movement whatever. The guns were silent; the men concealed. At night the meetings of combat patrols were at times of sufficient strength to be designated raids or counterattacks.

"There were no meals during the day and only two at night. One of these was from the rolling kitchens. Every evening about half-past eight a carrying party would leave Tafournay Farm with the 'marmite cans.' This meal would be served to the front-line companies about an hour later. The second meal was prepared by a detachment located in Monneaux. This meal was served about three o'clock in the morning. Throughout the night the entire command was kept busy on patrols or security detachments, building barbed wire entanglements, or digging trenches. Just before daylight a check was always made. Everyone in the front line was placed in the trenches, given a canteen of water and a box of hardtack and ordered to sleep all day. The trenches were then covered over and concealed by the use of bean poles. Two observers from each front-line platoon were the only men on duty during the day."

NOTES:

1. The more important raids on the enemy bring in the coöperation of the regimental commander for the reason that he is permanently in view of the front held by the regiment, whereas the battalions are relieved from time to time. The regimental commander has his intelligence section always observing the front and is in permanent relationship with the supporting artillery which may be needed for supporting a raid.

2. The surest way of defeating the object of an enemy raid is to have advance knowledge of when and where it is coming, and then to withdraw our troops from the area to be raided.

CHAPTER TWENTY-NINE: DEFENDING

I–Enemy fire and movement; II–Local security detachments; III–Holding force; IV–Battalion reserve; V–Battalion commander's further activities.

I: ENEMY FIRE AND MOVEMENT

If it is suspected that the enemy is forming for an attack, counterpreparation fire is executed upon the actual or probable assembly places of the enemy infantry and armored fighting vehicles. The relation of the infantry battalion commander to this fire is that, through his intelligence functions, he can determine where and when the enemy are forming for an attack, can ask for the counterpreparation fire and, incidentally, alert his companies and attached units. The machine-gun company and some of the attached units may be able to take part in this counterpreparation fire. Writing of the Marne Defensive on July 15, 1918, the commanding officer, III/38th Infantry, states: "The troops occupying the river bank were in better shape as they had, at nightfall, assumed their battle positions on the river bank. Also, no working details, other than the necessary food-carrying details, had been taken from the forward companies. There was practically no shelling along the Marne for the first two hours of the bombardment, and platoon and section leaders were able to make numerous inspections of the isolated posts and assure themselves that every man was in his proper place."

The enemy attack may come at dawn or during any time of the day or night. It consists of fire and movement. There may be light or heavy preparatory fires by the enemy artillery, or the enemy may endeavor to surprise us by using armored fighting vehicles without any preparatory artillery fire. Some attacks, at dawn, have been made with only the bayonet. Air missiles also may be used against our defending battalion.

Enemy artillery fires and the fires of the battalion commander's supporting artillery as well, will probably be most dense in a stabilized situation, least so in a mobile situation. In either case, non-

persistent gases may be expected by the defending infantry battalion; smoke also, either from enemy artillery or as an air missile (smoke screen laid by enemy airplane). The enemy rolling barrage, if used, may vary in depth from two hundred to over one thousand yards; heavy as well as light projectiles may be used. The commanding officer, III/38th Infantry, writing of the Marne Defensive, states: "The Germans, in the attack of July 15, employed a long preliminary bombardment; including the rolling barrage it lasted more than nine hours. This accomplished little in the way of destruction of the defenses while on the other hand it afforded the Allies time to place themselves on guard and to reorganize where necessary. All the details for the fire and the advance of the infantry over a long period were definitely fixed in advance. It is sure to happen in all such cases that the course of events is different from what has been foreseen and, if the attack is wound up like clockwork, a good part of the rolling barrage is wasted. In the case of the rolling barrage over the sector of the 38th Infantry it was all wasted."

The enemy infantry, bringing along their weapons, will close in on such barrages or concentrations as they have or follow their armored fighting vehicles, assault the strongpoints of our defending battalion, endeavoring to capture them and to filter through any gaps between them. In pressing their attack they will make the efforts in fire and movement that have been discussed in Part 3.

II: LOCAL SECURITY DETACHMENTS

Outside of such aid as his machine-gun company and attached units have given in the counterpreparation, the local security detachments are the first elements of the battalion commander's defense to be in touch with the advancing enemy troops. It is to be remembered that there may be only a few squads in these local security detachments, and their orders may be merely to give warning of the attack and retire; to warn and retire, disputing the ground; to warn and hold the enemy for a certain time; to warn and hold indefinitely. While the local security detachments are doing any one of these things, barrages may be fired on the advancing enemy troops while they are moving from their line of departure toward the main line of resistance of our battalion. These

barrage fires will be placed on avenues of approach the enemy may use and, whatever the local security detachments do, they must know where these barrage fires are to fall. If the local security detachments are to retire, as is the general case, they must endeavor to withdraw behind the main line of resistance before the barrage fires of the supporting light artillery come down, or they must know the gaps in these barrages through which they can withdraw safely. The local security detachments may signal their warning of enemy attack by means of pyrotechnics.

The fighting of the local security detachments, if such has been ordered, may delay and disorganize, possibly even repulse, the enemy's troops before the latter reach the main line of resistance. If the fighting of the local security detachments succeeds in causing the enemy troops to fall behind their successive concentrations or rolling barrage, the battalion's holding force on the main line of resistance will be better able to repulse the enemy if and when they approach the main line of resistance. Writing of the Marne Defensive, the commanding officer, I/30th Infantry, states: "The 1st and 3rd Battalions (German 398th Infantry) were met on the American side by a platoon of Company B, 30th Infantry, under the command of Lieutenant Savage. * * * This platoon was eventually overwhelmed but not before it had so seriously checked the advance that the Germans were unable to reach their line of departure in time to follow their rolling barrage." It may be remarked that in this case of the I/30th Infantry the troops in front of the railway line (the German line of departure) amounted to considerably more than what would be a normal local security detachment; hence the very disintegrating results upon the German attackers.

During this period of combat of the local security detachments, the battalion commander secures information, alerts the holding force and reserve, employs his long-range weapons to fire on the enemy and to aid the local security detachments, and calls for such barrage fires as are desirable.

If the local security detachments come from companies other than those on the main line of resistance, their withdrawal behind the main line of resistance and assembling can be accomplished with less confusion and danger than if these men return to com-

panies in the strongpoints on the main line of resistance. On the other hand, if the men in the local security detachments come from the companies in the strongpoints on the main line of resistance, their homing instinct will insure that their companies are warned of the activity of the enemy.

The battalion commander promptly reports to the regimental commander the fact of attack, and the time at which his units are at their posts.

III: HOLDING FORCE

When the enemy troops approach the main line of resistance the barrage fires are put down in front of it. As the supporting artillery's barrages alone will not be sufficient to hold back the enemy, the battalion's machine guns automatically open their own fires to create an impassable sleet of bullets (the final protective lines) in front of the main line of resistance. The battalion, regimental, or a higher commander may order the barrages put down. It must be remembered that if the enemy attacks unexpectedly, these barrages may not be effective or may not even be fired; in this case the battalion must defend with the weapons of its organic and attached units alone. Due to the noise of battle, it is possible that no one in the infantry battalion will know whether or not the friendly barrages are being fired. Consideration of the effects on observation of dust, fog, smoke, gas (which requires wearing of masks) and night, shows the necessity of well-established final protective lines for the machine-gun sections of the defense.

The effect on the enemy troops of the barrages, added to those previously caused by the counterpreparation fire, may prevent the attacking enemy troops from closely following their successive concentrations or rolling barrage. If this situation exists, the defenders will have more time to get set to repulse the enemy troops after the enemy artillery fire has lifted; also, these attacking enemy troops will be at a great disadvantage in that they will have to advance a long distance with only the aid of such fire as they can produce themselves.

If enemy armored fighting vehicles accompany the enemy troops, they will be fired on by the 37-mm. gun and our artillery. If these guns can knock out the enemy armored fighting vehicles, they will

be well repaid for having remained concealed and silent up to this moment.

If the enemy troops penetrate the main line of resistance, the strongpoints that still hold out defend themselves and fire upon the enemy troops in the adjacent areas. All battalion units available toward the rear (machine-gun sections, the reserve and attached units) fire on the enemy that have penetrated, thereby aiding the strongpoints still holding out and preventing further penetration. Artillery barrage fires that have been prepared for areas within the center of resistance may be asked for by the infantry battalion commander, if such fires are desirable. The holding out of even one platoon in a key position may enable it to use flanking fires along the entire front of the battalion. "A single machine gun, by flanking fire, may repel the most determined assault."

If the enemy troops penetrate the center of resistance, attackers and defenders may be close together and this fact, as well as the possibility of ruptured signal communications, may render it difficult for either artillery to place fires confidently; they will be fearful of firing on their own infantry.

A battalion commander may have to improvise against unfortunate results in adjacent battalions. Writing of the Marne Defensive of July 15, 1918, a battalion commander states: "By noon of the 15th, the 38th Infantry was not only holding the original front of the sector and facing the enemy for a short distance on its left flank but was holding (also) a line five thousand yards long facing east. Three German regiments * * * were known to be to the east of the regiment. If strong, well organized attacks had been made against the Americans from this direction it is quite possible that they would have been successful and that the troops in the valley of the Surmelin would have been cut off. However, the situation looked much more serious than it really was, due to the fact that, although the Germans had gained good positions on the flank, they had been so severely mauled in getting there that they were unable to press the advantage."

Even if the enemy troops penetrate the center of resistance, the strong points that hold out will attract many of the enemy as magnets attract iron filings; when the enemy troops have molded themselves to the various points holding out, and are preparing to

assault them, they place themselves in a position favorable to the fires of the defense.

At any pause of the enemy attack, the defending battalion commander makes every effort to oppose further attempts to renew it. Close touch with the enemy is maintained and the battalion commander makes such changes of the companies and attached units as are practicable and will best enable him to maintain his freedom of action to apply power.

In discussing the battalion during the defensive battle, it must not be visualized as that of full units, dug in, wired in and aided by ingenious defensive barrages of the supporting light artillery. The companies and attached units may be depleted; there may be no obstacles; the digging in may be limited to rifle pits here and there; there may be little or no aid from the artillery—but the principles of the defense are always the same: such units as there are fight in width and in depth; such fires as are available are used as described.

What does the battalion commander do during the attack? He attentively follows the operations so as to be able to inform adjacent and higher commanders of the situation and to be ready to intervene with his reserve, and, if artillery fires are available, he endeavors to reëstablish coördination of effort between these artillery fires and the fluctuations in battle of his company and attached units.

NOTES:

1. Snipers with a change of rifles and large supplies of ammunition should be concealed in positions from which they can pick off enemy leaders.

2. In the defense the fires of machine guns are so important that adjacent rifle company units must give any aid necessary to keep them in operation.

IV: BATTALION RESERVE

The battalion reserve consists of one or more rifle companies, and is in strongpoints on the battalion reserve line. Part of it may have retired to the battalion reserve line after having fought in the local security detachments. The battalion reserve may count upon the

aid of the battalion and attached units that have placed some or all of their sections near the battalion reserve line—the breakthrough machine-gun sections and the infantry heavy weapons, for example. The reserve may be increased by numbers of stragglers. The commanding officer, I/30th Infantry, writing of the Marne Defensive, states that two platoons, driven from their positions by their own supporting artillery fire, moved around, picked up one hundred thirty-five prisoners and reported back at battalion headquarters.

The mission of the battalion reserve is to provide continuous defense throughout the center of resistance and thus limit any hostile penetration. During battle, the reserve covers with its fires the intervals between the strongpoints on the main line of resistance. If the battalion is the flank battalion of a larger force, its reserve may have to be used to protect the exposed flank; a similar situation might develop when the battalion is adjacent to another battalion that has given way before the enemy's attack.

The field manuals express the thought that counterattacks by so small a unit as the battalion reserve are not always worthwhile. However, when a portion of his center of resistance is holding and the impetus of the enemy attack has diminished, a counterattack may be made if the battalion commander feels confident that it will establish the integrity of his center of resistance. A counterattack usually has most chance of success if it strikes the side of the salient driven in by the enemy attack; such a flank attack, moreover, is more easily supported by fires from the battalion reserve line. The battalion commander will be wise to depend upon maximum use of the units under his command; he must not count too confidently upon receiving aid from light artillery.

Circumstances may arise in which it will become necessary for the battalion reserve to make a counterattack into the center of resistance of an adjacent battalion. This might require that arrangements be made with commanders in the adjacent sector.

If the enemy attack pushes on against the battalion reserve line, the battalion commander makes every effort to hold it, leaving it to the regimental commander to take any action necessary to restore the situation on the lost main line of resistance.

V: BATTALION COMMANDER'S FURTHER ACTIVITIES

While the *planning* of the defense is highly centralized in the battalion commander, the *actual defensive battle* is largely decentralized to the commanders of the companies and attached units. Once the attack starts, these commanders must solve many problems themselves.

The commanding officer, I/30th Infantry, writes: "The signal equipment was tested a few minutes after the bombardment began (July 15, 1918) and was found to be useless. A rocket was sent up for the artillery concentration * * *. Due to the darkness and intense bombardment it was impossible to know whether the American barrage was falling * * *. The folly of attempting to move troops (reserve) in the woods, darkness and intense artillery bombardment was realized and it was decided that no movements of troops would be ordered. * * * As soon as it was light, four officer-patrols were sent out for information. * * * It was decided to move the battalion headquarters about five hundred yards to the rear* * *. Messages were sent to Companies A, K and D, informing them of the change. The company commander of Company D construed the message to mean that the battalion was withdrawing, and he accordingly (retired) * * *. Much of the information transmitted during the battle was incorrect. Individuals reported what they believed or imagined and not what they actually knew. This is natural in combat. In this case, misleading reports were carried to the rear by stragglers. The signal equipment which was installed in this area by both Americans and Germans was of no value after the attack began. Communication was possible only by runners, and this was slow and broke down frequently. * * * Surprise fire of small arms at close range is very effective and demoralizing. * * * Messages must be unmistakably clear and should always be written."

Writing of the same battle, a battalion commander of the 38th Infantry states: "Definite news that the attack was to start before daylight was received at division headquarters, and though the artillery was notified, no endeavor was made to pass the news on to the infantry, who had been required to send large working details far from their positions. As a result these details were caught

by the German bombardment and were unable to return to their organizations for several hours. * * * All wire communication of both sides was shot away within ten minutes and the radio and light stations lasted only a short time longer."

Automatic functions. These two preceding extracts concern a defense made under conditions of extremely heavy fire by both sides; they show the rupture of signal communications within the battalion, and communication with adjacent battalions was also rendered impracticable. This had its effect on the intelligence and operations functions of the battalion commanders.

Intelligence functions. Such reports as are brought by individuals are scanty and usually limited in outlook; failure of signal communications may leave the battalion commander very much in the dark. At night or early dawn it is hard to tell a friend from an enemy; troops can wander around with unexpected results. In a protracted defense, the battalion commander may hope for information from, as well as expect to be called upon to give it to, the infantry airplane. He should receive information from the regimental commander and from adjacent battalions. Both for giving and receiving information, the battalion commander must keep in touch with commanders of adjacent battalions; it is doubtful if this has been attained very often. Questioning of prisoners can bring out information. In case the enemy is beaten back he must be followed up by patrols.

Operations functions. With scanty information and poor visibility caused by darkness, smoke, gas and bombardment, the battalion commander cannot do much in the early stages of the defense. Combat is considerably decentralized into the hands of the commanders of companies and attached units. The battalion commander can shift the fires of machine guns and the infantry heavy weapons, pick up the stragglers that come back, adding them to his reserve, watch the situation, call for artillery fires, counterattack if desirable or, if worst comes to worst, hold the battalion reserve line pending intervention by the regimental commander with the regimental reserve. One distinguished division and corps commander of the American Expeditionary Forces found local counterattacks so costly in losses and so generally barren of result that he forbade them.

It must not be forgotten that when the battalion takes up a defense suddenly, it may not be able to count upon much, if any, artillery support. Various causes, character of the terrain, lack of signal communications, may require the battalion commander to go it alone. He will always try to get artillery support, and will be glad if he can get it.

NOTE:

According to the *Field Artillery Field Manual,* prepared fires of the artillery on areas where the enemy has penetrated are fired on the authority of the infantry regiment or infantry brigade commander, as the plan of defense may provide.

CHAPTER THIRTY: WITHDRAWING

As a preconceived line of action, the infantry battalion may have to withdraw from combat after a defense of a limited duration. One case of this would be where the battalion as a whole is employed in the outpost of a defensive position occupied by the division. Again, the battalion may have to withdraw, upon an order received from the regimental commander, from any action in which it may be taking part. In either of these cases the problem of the battalion commander is essentially the same. If he knows ahead of time that he is to withdraw, he can make, in advance, certain dispositions and plans that will help him in withdrawing; if he unexpectedly receives an order to withdraw, he has to take his dispositions as they exist and make up his plan for withdrawing after he receives the order.

It is obvious that withdrawing can be done most easily if the enemy does not know about it. This dictates that withdrawing be done at night, when the observation and movement of the enemy are hampered. Stubborn efforts should be made to avoid withdrawing during daylight. If the position from which the battalion is to withdraw is near the edge of dense woods or brush that effectively prevent enemy ground and air observation, withdrawing might possibly be done during the day. It may have to be done under very difficult conditions.

Automatic functions. If the battalion is to withdraw, the regimental commander will endeavor to keep the battalion supplied and at the same time hold the bulk of the trains back out of the way so that the battalion commander need not have to concern himself with their safety or movements. Extra efforts should be made by the medical regiment to evacuate promptly all cases at the battalion aid station.

Intelligence functions. In addition to carrying on combat, the battalion commander must be sure that his companies and attached units know the routes back to the place at which the battalion is to assemble.

The adjacent battalions may not be abreast of the battalion

when it withdraws; enemy armored fighting vehicles and infantry in trucks may approach the flanks, which means that the flanks must be carefully watched; connecting groups would have important jobs for they might have to act as flank guards.

Operations functions. A small crust of defenders may be left in the front lines to simulate great activity while the remainder of the battalion moves back. Units along the entire battalion front should be pulled back at the same time.

If, as the result of pressure by the enemy, the battalion is ordered to withdraw by the regimental commander, the battalion commander will use such units as he has in hand (the battalion reserve) to cover the withdrawal of those in front of the battalion reserve, grouping these withdrawing elements into a new reserve farther to the rear. Like a man descending a ladder, he will place his rear foot firmly before withdrawing his front foot; by anchoring himself solidly toward the rear each time, the battalion commander will best maintain his freedom of action to apply power. The long-range fires of machine guns and infantry heavy weapons should be applied to the limit of their powers. Supporting artillery fires may be able to aid the battalion commander.

As an infantry battalion withdrawing from combat does not intend that the enemy shall come to grips with it, deployment in depth is not necessary; hence, in withdrawing, an infantry battalion can deploy on a relatively wide front and thereby bring more fire power to bear on the enemy. This wide dispersion may dictate that machine-gun units be attached to rifle companies. An engineer detachment to effect demolitions may do much to hamper the enemy's pursuit.

Delaying action consists of a series of successive short defenses followed by withdrawals. Terrain with much vegetation favors delaying action. Deployment of the enemy under awkward conditions can be forced by small elements, and then these small elements can slip away. An easily held defile is particularly useful to troops fighting a delaying action. This action of alternate holding and withdrawing will be carried on until the mission given by the regimental commander has been accomplished. It is possible that the battalion commander may shake loose from the pursuing enemy sufficiently to be able to take up a rear-guard for-

mation (Chapter Eight, Section VI; Chapter Twenty-one). Again, in certain cases, the battalion fighting a delaying action may have to hold until the last man as did the Munster Fusiliers at Etreux.

If the enemy threatens to hook on to the firing line of a withdrawing battalion, armored fighting vehicles will be useful. They can cruise around among the enemy infantry and engage their attention, while the firing line of the withdrawing battalion pulls away. It is possible that they could produce smoke screens to cover the withdrawal.

Throughout all retrograde movements, efforts will be made to heighten morale; any confusion must be immediately suppressed; no other operation of the battalion requires such insistence on orderly performance of duty. Furthermore, the battalion commander must make every effort to keep in communication with his regimental commander.

Writing of the early days of September, 1914, a battalion surgeon, Captain Robert V. Dolbey, says: "Tried by hardship, of an endurance splendid, were the men who faced around at the Marne. Our regiment (the 2nd Battalion, The King's Own Scottish Borderers) that had left Dublin 1,100 strong, a bare fortnight before, by this time numbered just over 500 officers, N. C. O.'s and men. But now there was nothing that they could not face; morale unequalled; driven but undefeated still. In a dream we marched, unconscious of the towns we passed, the villages we slept in; fatigued almost beyond endurance; dropping to sleep at the five-minute halt that was the reward of each four miles covered. Whole companies, dozing as they marched, fell forward drunkenly on each other at the halts. Sleeping men lay, as they had halted, in the roads, and were kicked uncomplainingly into wakefulness again. Officers alone, from a sense of duty and responsibility, remained standing, lest the sleep that drugged their footsteps might find them wanting when the order came to fall in and march again. Once more forward, with feet that hurt like a hundred knives, as new surfaces of frayed sock rubbed over fresh blisters, with legs that were no longer conscious of the sensation of pain. None but a Regular Army could have done it; and after the war we shall worship the gods of spit-and-polish and barrack square again. If ever a war has shown the value of discipline and

training, it is this." It was these men who recrossed the Marne and, crossing the Aisne, flung themselves gallantly against the German trenches, despite the physical, mental and moral strains of the retreat from Mons and le Cateau.

Major General Sir Frederick Maurice describes how the efforts of even very fatigued men can slow down and finally hold an attack: "It was now the sixth day of the battle, March 26. The danger of the Germans reaching Amiens and driving in a wedge between the British and French armies was very nigh. * * * Already, though they did not yet know it, the valour and endurance in adversity of our men was being rewarded, for the Germans, equally weary, could not sustain the momentum of their attack. Our airmen, who watched the long-drawn-out struggle from above, have described how, in its last stages, the infantry upon both sides were too exhausted to move, save at a slow walk, and would lie for hours opposite to each other without firing, having lost the energy to fire, save in a real emergency. Ludendorff had, as I have said, planned to get the last ounce out of his men and in order to avoid loss of time in reliefs had left them to fight on until sheer exhaustion made them almost impotent. He had hoped that before that stage of exhaustion was reached he would have driven a wide breach in our line, but he had not reckoned with the doggedness of the British infantryman, whose spirit kept him fighting long after he ought to have collapsed. The line, though badly bent, was still a line, held by battalions reduced to the size of companies, brigades to the strength of weak battalions, but still held."[1]

NOTES:

1. In retrograde movements, ammunition, water and food may be dumped on the roadside for the battalion to pick up.

2. Smoke screens laid on the enemy by our airplanes might be helpful to an infantry battalion when it is withdrawing or fighting a delaying action.

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[1]From *The Last Four Months: How the War Was Won*, by Major General Sir Frederick Maurice, by permission of Little, Brown & Company, publishers.

PART 5
INFANTRY UNITS LARGER THAN THE BATTALION

CHAPTER THIRTY-ONE: THE INFANTRY REGIMENT FROM THE VIEWPOINT OF THE BATTALION COMMANDER

I–General consideration of the regiment; II–Automatic functions; III–Intelligence functions; IV–Operations functions.

I: GENERAL CONSIDERATION OF THE REGIMENT

We shall discuss the infantry regiment so as to bring out its characteristics as they affect the battalion commander.

Of the arms, the regiment is the sentimental, the historical unit; its regimental colors carry the battle honors. General Worth's division at Vera Cruz comprised four thousand five hundred men; only half as much again as the present infantry regiment and much less complex.

The average American has little love for oratory but he is interested in facts. This condition renders it very difficult to address men who have been in action. In civil life, a politician speaks to an audience not likely to be well-informed of detail, but in talking to the man who has seen action, the higher leaders frequently talk to men who, through actual experience, know more of the details than these higher leaders themselves. This is one reason why it is not always advisable to pitchfork battalion and regimental commanders into units from the outside; the junior leaders and the men trust those who have grown up among them.

Speaking of one of his regimental commanders, a commanding general of the 1st Division states: "He lived constantly among his men and demonstrated his courage by sharing their dangers. He knew every officer and many of the men by name. He showed

them that he was familiar with their difficulties and their deeds, and that he had a genuine affection for them. He was the type of leader who could always be relied upon to take his objective, and the taking of objectives is the real business of war."

The regimental commander usually is old enough to have gained knowledge of the powers and limitations of men. The necessity for application of this knowledge is illustrated in the following extract from a lecture by Colonel C. C. McCornack of the Medical Corps: "An excellent commander of a front-line battalion, who had thrown his whole heart and energy into his duty, had been harassed and hampered by the enemy and his duties until his regimental commander, who is a close observer, saw that he was beginning to lose his efficiency; he was not getting results and was about to break. He was clearly on the road to Blois. The colonel needed him badly as a battalion commander and also did not want to see a good man ruined. The colonel studied his case. Finally he told this major that he hated to take him away from his battalion but the rear echelon was in bad shape, that supplies were not coming through properly, and that he was the only man upon whom he could rely to straighten things out. The major was sent back and kept back for two weeks. Here, the new job, the relief from constant hammering, and the consequent change and rest, put him on his feet again and when the important work of reorganizing the supply was completed he returned to his battalion a new man. I do not see how this could have been handled better. But we all know of cases that were handled worse, where the major was driven until he staggered under the constant blows of duty, until he lost his force, until he hesitated, until his judgment was impaired, until his will could no longer force his body into his usual acts of courage or his mind into thought, until he broke down and was relieved, to be reclassified and partially or wholly lost to the service, his place being taken quite probably by an untrained and inferior man."

The regimental commander has three battalions, a headquarters company, a howitzer company and a service company under his command, together with a staff to assist him. The staff is the same as for a battalion, with the addition of a munitions officer. Sometimes an engineer officer may be attached. Not infrequently a

battalion or a regiment is detached for combat with some other unit, or for use as brigade or division reserve.

There are marked differences between the battalion and the regiment. The battalion consists of organic units of different weapons and different rates of movement; the regiment consists of three organic units (the howitzer company is usually attached to the battalion) similarly armed and of the same rate of movement. The battalion commander has to concern himself with a variety of trajectories of his organic units, attached units and of light-artillery fire; the regimental commander concerns himself mostly with the trajectories of light-artillery fire. The battalion commander *superposes* all his different means in the same zone of action, whereas the regimental commander uses his means, all alike, in different zones of action. The battalion commander, frequently, will be able to see the entire front of his battalion, whereas the regimental commander generally will have to depend on the reports sent in by his battalion commanders, particularly when he has two battalions in line. While the battalion commander can personally lead his battalion, the influence of the regimental commander is less direct, less immediate and less frequently manifested (Chapter Six). However, the regimental commander must know how things are going, he must ascertain and supply material needs, he must see and be seen by his men.

During battle the regimental commander always has a unit in the front line; the battalion commander, only when his battalion is engaged. The regimental commander has a permanent job of signal communications, supply, intelligence and operations; the battalion commander has these only when his battalion is engaged.

The regimental commander uses his battalions to accomplish the mission given him by the brigade commander; of his three battalions, one is usually in reserve during the earlier stages of battle, but is likely to have to go in at any time. As remarked before, the regiment is like the chuck of a machine into which the battalion, the tool, is placed and used until blunted or replaced.

The functions of the regimental commander will be taken up in the following sections of this chapter, but it may be remarked here that the battalion commander always knows that back of him is the regimental commander, ready with all his resources in per-

sonnel and material to aid the battalion commander in maintaining his freedom of action to apply power. Furthermore, should orders or circumstances demand that part of his battalion be left behind, the battalion commander knows that the regimental commander will pick up these elements, shepherd them along, and place them where the battalion commander can get them when they are needed. At least, the regimental commander will do his best; like all other commanders on or near the field of battle, he has his own difficulties with which to contend.

II: AUTOMATIC FUNCTIONS

While the regimental commander, to a considerable extent, farms out combat to the battalion commanders, he must see, himself, that his automatic, intelligence and operations functions are carried out.

The battalion needs ammunition spasmodically at irregular intervals. The regimental commander, assisted by his regimental munitions officer, receives the empty vehicles of the ammunition section of the battalion combat train, sees that they are refilled, and turns them over to the battalion supply officer (Chapter Four, A, Section I). For this purpose the regimental commander establishes a regimental ammunition distributing point, under cover on or near a convenient road, and as close up front as is practicable.

The battalion needs water, food, forage and fuel constantly at regular intervals. The regimental commander, assisted by his staff officer for supply, places water and rations at the regimental distributing point where the battalion supply officer receives them. This regimental distributing point is usually from three to five miles behind the firing line. The regimental service company furnishes the vehicles, motive power and part of the personnel necessary, the remainder coming from the rear echelons of the companies of the battalion (Chaptor Four, A, Section IV; B).

The regimental commander endeavors to supply the battalion at the regimental distributing point without touching the rolling reserve of one day's field ration in the battalion section of the regimental field train; but if necessary, he dips into this rolling reserve, then replaces it from the division.

The regimental commander frequently is charged with moving

and halting the battalion section of the regimental field train; when battle is imminent, he will always move and halt the battalion section of the regimental field train and may also move and halt the kitchen section of the battalion combat train.

In cases in which the regimental commander cannot get the kitchen section forward to the battalion, he must see that water and cooked food are sent forward, to points close to the firing line decided on by the battalion commander, where the companies of the battalion will receive them. The battalion supply officer supervises this and, in reality, does it, but he will need the coöperation of, and possibly pressure by, the regimental commander. Instances have been known where pressure by the division commander had to be applied before the firing line received water and food. The regimental commander may be able to use details from a reserve battalion to assist in this work. Machine-gun vehicles can be useful if the terrain permits. However, it is dangerous to use men and machine-gun vehicles for this purpose because the battalions may be called upon to make a move at any moment.

The exigencies of combat sometimes require that the kitchen section of the battalion combat train, as well as the battalion section of the regimental field train, he marched and halted by the division commander; if this situation exists, the part of the regimental commander in getting water and food forward to the firing line becomes still more important.

Writing of the Meuse-Argonne Offensive, an infantry battalion commander of the 29th Division states: "A regimental commander should not lose sight of the fact that when his battalions are committed to action, he is responsible for the supply * * * particularly of food and water. In this operation, it was the third day before any food or water was gotten up to this battalion. The regimental commander must have been aware of the fact that no water was available in this terrain. Kitchens were pushed forward after the third day, which was a material factor in the results obtained by being able to serve hot meals * * *." The writer brings out the fact that a new colonel took over the regiment on the third day. The author of *Average Americans* writes: "All honor again to our supply company (26th Infantry). They were there close in the rear of us and worked forward food to

the men. At this time, with the men as tired as they were, it was of vital importance." In an attack it is sometimes practicable to get food forward to a reserve battalion, even though the other battalions cannot be fed.

The regimental commander, assisted by his staff officer for supply must see that needed supplies of signal, medical and engineer material are pushed forward to the battalions (Chapter One, Section IX; Chapter Two, Sections IV; V; Chapter Four, A, Sections II, III, V).

The regimental commander is responsible for equipping his regiment; it is not always possible for him to secure what is needed. *The History of the 28th Division* states: "On the eve of the greatest battle (Meuse-Argonne) in which this regiment (109th Infantry) was engaged * * * the regiment moved into position unsuitably equipped. Only an insufficient amount of flares and signal lights was obtainable, while one battalion actually moved into position with only two automatic rifles to the entire battalion, one of which was damaged beyond repair. Some men did not even have rifles and it was necessary to say to these men: 'Pick up a rifle from the first man you see killed or wounded.'"

During the move toward battle the battalion commander keeps most of his battalion together; the regimental commander, on the other hand, sends out his three battalions at different times, possibly on different roads. Furthermore, the regimental commander has to pick up, move forward and, at the end of the day, return to the battalions such elements as they have left behind. If moving by motor transport the battalion may leave behind all animals and vehicles belonging to or supplying the battalion, i. e., machine-gun company and headquarters company animals and vehicles; the battalion combat train, the battalion section of the regimental field train (Chapter Seven). If the infantry is motorized, such separation will not be necessary. The necessity of getting water and food to the battalion during the move toward battle and the necessity of providing these items and also ammunition during battle serve to point out one of the most important and most difficult duties of the regimental commander. The regimental staff officer for supply and the regimental munitions officer assist the regimental commander in this. Not all areas of possible future combat

are as well provided with roads as was the western front of the World War, and that was bad enough in places.

Having transport facilities, the regimental commander is able to help the battalion commander by giving him trucks to move up advance parties, reconnoitering details and so on.

As regards signal communications, the regimental commander is responsible for maintaining them up to the command post of the battalion commander. In attack, the battalion command post will be from two hundred fifty to one thousand yards in rear of the command posts of its assault companies; the regimental command post will be from five hundred to two thousand yards in rear of the battalion command post. The regimental commander is supposed to be in constant signal communication with the light artillery that is supporting the battalions of his regiment (Chapter Three, Section I).

The regimental surgeon holds the regimental aid station near the regimental command post; he sets it up only if necessary. He supervises the work of the battalion surgeon, watches evacuation from the battalion aid station by the medical regiment and pushes forward the necessary supplies. The regimental staff officer for supply keeps an eye on the movements of the vehicles concerned (Chapter One, Section IX; Chapter Four, A, Section III).

All in all, there is much traffic of personnel and vehicles under the eye of the regimental commander; supervision of execution, and dispersion to their duties of interested onlookers, is as necessary as having a traffic policeman at an important crossing in a large city. The regimental commander is responsible that stragglers are gathered and promptly returned to their organizations; a line of first sergeants armed with baseball bats and placed even with the battalion command posts will note the names of and *promptly* return stragglers to their proper company command posts.

III: INTELLIGENCE FUNCTIONS

The work of the battalion intelligence personnel forms the basis of all combat intelligence (Chapter One, Section VIII; Chapter Five).

The intelligence functions of the regimental commander cover the front of his battalions in line. Information is collected from

all sources, forward and back, right and left, as well as distributed in the same way. A regimental observation post is established. Patrolling is not the duty of the regimental intelligence platoon except in emergencies. Examination of prisoners and documents at the regiment is more detailed than at the battalion command post; it is conducted so as to get them back promptly to higher headquarters. A noncommissioned interpreter is included in the intelligence platoon. The regimental intelligence officer assists the regimental commander in these matters.

The regimental commander cannot exercise command unless he has information. During the crossing of the Meuse, states *The History of the 5th Division:* "Colonel X, going out toward Murvaux on reconnaissance in the afternoon, ran into a German battery. With his little party of ten men Colonel X attacked the battery—three guns were abandoned to our force." Peace-time training would frown upon a reconnaissance led by the commander of an infantry regiment, but war brings about many odd situations. Colonel X deemed it necessary to do this reconnoitering himself.

To have his battalions in the proper place at the proper time is one of the duties of the regimental commander. As he has numerous staff officers and a considerable amount of motor transport at his disposal, it would seem that he could make excellent use of intelligence personnel to guide the battalions to their places. In a country that is not mapped, or is poorly mapped, the regimental commander may find it necessary to develop a scheme for moving and placing his battalions; the intelligence officer should be able to render him assistance in this. Not all countries have as many landmarks as France, and many troop units lost their way in France, despite the landmarks.

IV: OPERATIONS FUNCTIONS

The impetus of supply and of signal communication is from rear to front; similarly, the impetus of orders should be from rear to front. It is taught that supplies must be pushed forward so that the battalion commander, figuratively speaking, can reach out his hand and pick them up; it is taught that signal communications must be pushed forward so that the battalion commander can

reach out his hand and pick up a telephone: if these things are important, how much more important it is that, once in battle, the regimental commander push forward his orders so that the battalion commander can get them without moving back from his battalion command post. In other words, where it is practicable, should not the regimental commander arrange that his battalion commanders receive his orders at their battalion command posts either by telephone, by written order or orally from the regimental commander or a member of his staff? It is the battalions that do the fighting, and the battalion commanders have enough to do without making exhausting and time-consuming trips to and from the regimental command post. As all units of the battalion fight more or less in combination, the battalion commander frequently will have to assemble his company and attached unit commanders; it will be far less often that the regimental commander should find it necessary to assemble his battalion commanders. On the night of October 4, 1918, "the commander of the 26th Infantry came up to the front-line battalion about 10:00 p. m. and the next day's attack was gone over with three battalion commanders and most of the officers of the two forward battalions." The reference adds that there was not much enemy artillery fire, a fact that is worthy of note because assembling all the officers of two battalions involves some risk of having them wiped out by one enemy shell.

The battalion commander applies all the power of his companies and attached units along the front assigned him; the regimental commander can apply one, two or three battalions on the front assigned to him.

The three platoons of the regimental howitzer company are usually attached to battalions for combat. Units of light artillery attached to the infantry regiment probably would be attached to or posted near battalions by the infantry regimental commander, if the battalions are likely to be attacked by enemy armored fighting vehicles (Chapter Two, Section II). Tank units attached to the infantry regiment for an attack would be attached to battalions by the infantry regimental commander as needed (Chapter Two, Section III). The machine-gun company of a battalion not in line may be sent forward to aid, temporarily, battalions that are in line. The same principle applies to any other weapons remaining at the

disposal of the infantry regimental commander, such as unattached platoons of the regimental howitzer company.

In battle, the regimental commander assigns his assault battalions a front corresponding to the effort he wishes to make on that particular front; a narrow front should insure greater power than a broader front. The combat capacity of any particular battalion can be increased by attaching to it infantry heavy weapons, a machine-gun company of a reserve battalion or a tank unit.

Like every other commander, the regimental commander will want to know if gaps occur between his assault battalions or on either flank of his regiment; he will send out connecting groups from his reserve, which will give information and security additional to that provided by the assault battalion commanders, who have themselves sent out connecting groups to watch their own flanks.

If the assault battalion will have much need to clean up ground passed over, the regimental commander may attach units from a reserve battalion to the assault battalion for this job.

The regimental commander may use his battalion in regimental reserve to relieve an assault battalion, to repel counterattacks or to operate in an adjacent sector; its commander will have to keep informed of the situation and make all the reconnaissances these operations may require.

An American battalion commander has stated that his battalion was employed as assault battalion during thirteen days of a twenty-one day attack. Usually an assault battalion has a less lengthy job. Attacking at 4:35 a.m., July 18, 1918, the III/26th Infantry passed through the II/26th Infantry at 7:15 a. m.; a similar change of assault battalions was made in the 18th Infantry at 9:00 a. m. The morning of the 19th, the I/26th Infantry became the assault battalion.

Future increases in the activity of enemy aircraft may require that the regimental commander be charged with antiaircraft fires in his regimental area. As organic means of defense he has the machine-gun companies of his battalions, whether assault battalions or in reserve. He would probably refrain from assigning antiaircraft missions to the machine-gun companies of assault battalions.

In *The Infantry Journal,* a colonel of infantry writes: "The day's experience of the support battalion affords several interesting battle lessons; this battalion, in the fog of the morning, had deviated to the left of its proper line of march and in so doing had run into the flank of a German trench system in the sector of the division on our left. These trenches were strongly held with machine guns which were preventing progress by this division. Our battalion became so involved that it could not capture the trenches nor break away in time to comply with its battle order. Thus it failed to appear at the proper time to take on its rôle as assault battalion though it undoubtedly performed a very useful task, taking many prisoners and machine guns.

"In the opinion of some of its officers it could have eventually dislodged the entire enemy force. It reached a point where it outflanked the Germans. The captain of the leading company, recognizing the importance of his position and believing the enemy could not hold on if an attack were pushed, presented the matter to the battalion commander and asked to be allowed to continue the action. The major stated that his orders required him to push forward to the relief of the assault battalion. To this the company commander replied that so much time had already elapsed that it would be impossible to carry out his march order and that great results would be attained by pressing his attack. However, the major decided to disengage and continue his march. In the light of after events this appears to have been unfortunate, for the position which this battalion outflanked and enveloped was held by Germans who stopped the division on our left for two days.

"Whether this battalion commander should have continued the engagement where he was or should have broken it off is an interesting question. He had already been delayed beyond the time when he could pass to the role of the assault battalion which, in the meantime, must have made other arrangements. If he dislodged the enemy on whose flank and rear he was he would undoubtedly perform great service to his own division and possibly to the division on his left. What would you do?" This excerpt illustrates some of the many involved problems that crop up in action.

At all echelons of command in the defense, there is less oppor-

tunity for exercise of the initiative of the various commanders than in the attack. The regimental commander must arrange that the battalion commanders defending the centers of resistance give adjacent battalions the aid of machine-gun fires along the fronts of these adjacent battalions. Furthermore, the relations of the regimental commander with the supporting light artillery are very definite; he announces the main line of resistance to be held by the battalion and he arranges that the supporting artillery places barrages in front of that line. The regimental commander prescribes the battalion reserve line. The regimental reserve line, on which a reserve battalion may have to organize strongpoints, is selected by the brigade or the division commander; this for the reasons that the regimental reserve line is a second line of defense, that it protects the divisional artillery and that it provides a line back of which brigade and division reserves can form for counterattack. In the defense, an engineer officer may be attached to the regimental staff. The regimental commander may prescribe the proportion of the battalion that is to be in local security detachments, in the holding force and in the battalion reserve; he may prescribe proportions of the battalion machine-gun units to be with these elements of the battalion in defense. In all of this we note how the senior officers inject their own ideas into the defensive plans of their juniors.

The plan for defense of a regimental commander is quite different from that of a battalion commander; the latter has to combine all his weapons along his front, the former, if two battalions are in line, merely hooks up the mutually supporting machine-gun fires on the flanks of his combat battalions. Both, of course, have to consider the fires of light artillery in defense. In addition, the regimental commander may utilize any remaining platoons of the regimental howitzer company, also the machine-gun company of his reserve battalion.

The regimental commander is charged with providing for the security of the regiment; in defense he details connecting groups to maintain connection with adjacent troops, and local security detachments for flank protection, but this does not relieve the battalion commander from the duty of taking his own measures for security.

If one of his battalions is to defend for a while, then retire (as when a battalion is used in the outpost of the division occupying a defensive position), the regimental commander will have to arrange, and cover, its withdrawal (Chapter Thirty).

While the infantry battalion commander has a more immediate interest in the fires of light artillery than has the infantry regimental commander, it is the latter who has close relations with the artilleryman who directs fire—the artillery battalion commander. The field manuals of the two arms agree in stating that the commanders of the infantry regiment and of the supporting artillery unit establish their command posts as closely together as the situation permits (Chapter Three, Section I). Where practicable, the same battalion of light artillery should always work with the same regiment of infantry; such a practice develops mutual confidence.

A battery can produce an effective rolling barrage on a front of one hundred yards, an effective protective barrage on a front of two hundred yards; if the infantry regiment has at its disposal only the fires of one battalion of light artillery, the regiment can secure a maximum of a three-hundred-yard wide rolling barrage or a six-hundred-yard wide protective barrage. The regimental commander can favor any particular battalion by securing a preponderance of artillery fire in front of it.

While the infantry regiment commander may know what artillery fires are needed in a defense and at the start of an attack, we may be sure that in the later stages of an attack it is the infantry battalion commander who will have more prompt and more exact knowledge of what his battalion needs in the way of artillery support. If the infantry regimental commander plays his part in the infantry-artillery team, the artillery battalion commander will do his utmost to have batteries ready to aid the infantry battalion.

The artillery responsibilities of the infantry regimental commander in the defense were implied in the old field service regulations, which stated: "He insures the establishment of pyrotechnic signal communications from the front lines to the supporting artillery."

In exceptional cases, artillery will be placed directly under the command of the infantry commanders. Such exceptional cases arise as a result of operating in certain kinds of terrain, under spe-

cial conditions of atmosphere (fog or smoke), when the division is widely spread out and, in general, when the situation has resulted in marked decentralization of command. *The History of the 28th Division* says: "On September 5, 1918, plans issued from G. H. Q. completely revised the American methods * * *. An original feature in these plans placed the machine-gun battalion (then separate from the infantry regiment) and field artillery under the control of the (infantry) regimental commanders in action, and authorized their use for direct fire whenever necessary. With American certainty, the previous complex methods of obtaining consent from superior authority for the use of artillery and machine-gun fire to stem a hostile attack or to put down a needed barrage, was done away with." Speaking of the operations of October 5, 1918, the commanding officer, III/26th Infantry, says: "As soon as it had been discovered on the previous day that the infantry units could not follow the barrage as prescribed, the control of the artillery fire passed to the brigade and regimental commanders. There was an artillery liaison officer with the assault battalion commander as well as with the regimental commander. * * * The regimental commander then directed fire on the Bois de la Morin and the Bois du Chêne Sec. * * * The battalion commander asked for a concentration of artillery fire upon Hills 272 and 263. The regimental commander arranged for thirty minutes of fire on these positions and ordered another advance at 4:00 p. m. Due to one of the misunderstandings which are bound to occur in battle, the fire which was to be directed on Hill 263 came down on the positions of the company which was on the flank of Hill 272. This fire was so deadly and demoralizing that the company commander did not wait for the order of the battalion commander but fell back across the valley. He cannot be criticised for this, since he lost forty in killed and wounded from friendly fire of the one hundred twenty men he had left."

NOTE:

The possibility that there will be more machine guns with the infantry regiment in defense stresses the increasing importance of the regimental commander in arranging the fires of these weapons in a defense.

CHAPTER THIRTY-TWO: THE INFANTRY BRIGADE FROM THE VIEWPOINT OF THE BATTALION COMMANDER

The infantry brigade consists of a headquarters company and two infantry regiments. The brigade commander has a staff of assistants doing the same class of work as in the regiment and battalion. The brigade is a purely tactical unit; it does not form a link in the supply system, which works from division to regiment and, via the battalion, to company.

It is not often that the infantry battalion commander will have tactical relations with the brigade commander. However, the battalion may be attached to a brigade other than the one to which its regiment belongs, or it may be held out as a brigade reserve. In these cases the battalion commander receives orders directly from the brigade commander. His supply is still in the hands of his regimental commander, and this function of the battalion commander is liable to give trouble, for, temporarily, the battalion is detached from its own regiment.

The *automatic functions* of the brigade commander are limited to keeping his own headquarters going; he should not have to intervene in questions of supply of the regiment. He would arrange for the supply of an attached battalion that cannot be supplied by its own regiment. He is responsible that his own signal communications are carried up to the command posts of the infantry regiments.

His *intelligence functions* are more restricted than those of the regiment and battalion; he is like a sponge in that he absorbs all available information for his own use, but neither actively collects it nor passes it out to the regiment or to the division. He would help in this if need be.

Operations functions. In the defense we find that the infantry regimental commander selects the *battalion* reserve line and that the infantry brigade commander or the division commander selects the *regimental* reserve line; this is further evidence that preparation for defense is highly centralized in the higher commanders. An

infantry battalion on the regimental reserve line has the job of holding a line that is doubly important as a defensive line in that it is the line protecting all the artillery of the division.

An infantry battalion in brigade reserve must make the same preparations for making counterattacks as does the reserve of an infantry battalion. The counterattacks of a battalion in brigade reserve will require more time to get under way and will probably stand more chance of being aided by the action of tanks and light artillery. Like the reserves of regiments and battalions, the brigade reserve may have to be used defensively in limiting a penetration by the enemy.

A battalion in brigade reserve may be called upon to send forward its machine-gun company and any attached infantry heavy weapons to aid an assault battalion in advancing from the line of departure. During a defense its machine-gun company and any attached infantry heavy weapons may be sent forward to execute long-range fires or to support a counterattack. Machine guns of reserve battalions may also have to carry out many antiaircraft fire missions. The battalion in brigade reserve may attack under orders of the brigade commander, or it may revert to its regimental commander. A battalion in brigade reserve may have to attack or counterattack at any point along the brigade front or adjacent to it; the battalion commander will have much terrain to study. A battalion in brigade reserve may have to make night marches several hours long by compass and across country.

As the combat capacity of the brigade lessens, the brigade commander moves closer to the firing line. *The History of the 28th Division* states: "From this point the actions of the 110th and 109th Infantry were so closely allied that no distinction can be made between the two, both being used as one unit by the brigade commander." And, when units were reduced on the fourth day of the Aisne-Marne Offensive, it was the brigade commander of the 2d Infantry Brigade, 1st Division, who led the first wave of the assaulting infantrymen that captured Berzy-le-Sec.

PART 6
THE INFANTRY BATTALION DURING A REST PERIOD

When we consider that the 1917 mutinies of the French army started among the troops at rest, and that the Germans assert the breaking of their strength was due to disaffection of the troops and other formations at the rear, we see that the back areas require thought and action. Troops at the rear are highly susceptible to rumors and fear.

We no longer have lengthy periods of recuperating, replacing and refitting between battles. The rest period is, in its way, as intense as is a major action. An exactly measured period of idleness is given at its beginning in order to allow more time for sleeping, cleaning up and eating the ration-and-a-half issued for the first few days. As the troops come back to normal, exercise and drill are resumed, all to the end of preparing them for the next mission. Battalions, even those withdrawn in bad shape, are resilient and come back quickly if properly handled. The welfare organization can help.

Training instructions will be received from the regimental commander, and the battalion commander himself will know of several things that must be stressed in preparation for the next mission.

The regimental bands should be utilized fully; they are kept out of action so that they can be used in rest periods. And in this connection it may be remarked that our American troops do not get anything from their bands under conditions in which the British make much use of them. Our bands are used in camps and ceremonies, while the British use them also on the march. No one who saw the infantry of the 15th Scottish Division marching in daylight to relieve the 1st Division on July 21, 1918, will ever forget the strident, heartening music of the pipers as the impassive column wound its way through the town of Cœuvres under a shower of German air bombs. Leave the heavy-instrument players back, but in each band we should have enough buglers or fifes

and drums to keep up music on the march, a Revolutionary War tradition we have neglected.

Colonel P. V. Kieffer, Field Artillery, has studied the rest period. He writes: "We will suppose a division, worn out by a long series of fighting operations, is finally relieved for rest. It is ordered back to the rear, far from combat. Covered with mud. physically anæmic, and morally shaken, the survivors expect to find rest and quiet. They must find them without stint. The object of this period is clear cut. The war is not over. The thing now to be done is to take stock and to get into form for further fighting. From the material point of view, the task is simple: clean up, rest, good food, and getting material, equipment, and personal effects in order. The unit should not be descended upon by a horde of strange inspectors, who can have very little idea of what the unit has been through. It wants to get back into shape, it wants to make itself look worthy of the experiences through which it has just passed. Therefore the first inspections and corrective measures should be taken by the junior officers— the lieutenants and captains, who have been closest to the men in battle. They can take measures which are received in good grace where the same measures would only be met by resentment and sullenness if applied by an outside inspector. The inspection should be progressive from platoons to division, and outside inspectors should appear only after the unit has had a chance to put itself in creditable condition. Direction and impulsion should certainly come from above, but the activity apparent to the enlisted man should start at the bottom.

"Rest bivouacs should offer complete security. The soldier's mentality has now changed; the more he was a fatalist and resigned under fire, the more strongly does he seem attached to life now that he is out of the fight.

"The rest period is not meant to be a period of loafing, the enervating effect of which would be worse than no rest at all. A certain amount of instruction is beneficial, but it should be presented in an interesting way. It should be remembered especially that in war new methods come from the front to the rear. The rear only studies and codifies the expedients of the front line; and its knowledge of the best methods to be used in fighting will

usually not be as late as those of the units which have just returned from battle. Care therefore should be taken not to force on such troops, under the guise of instruction, methods which they have found to be ineffective. Close-order drills are usually recommended to 'get the men in hand,' their value is not great; if the morale has been good in battle, the pride of the individual and the unit should, with a little urging from unit commanders, put all the military snap into the organization that is required. Certainly, they should not be continued so long as to enervate the men and to lead them to draw unfavorable comparisons between the instruction and the realities of the battlefield.

"Commanders should explain to the units, the operations in which they have been engaged, what their efforts have achieved, and what remains to be done. Rewards and decorations should be promptly distributed. When wounded of the organization are in nearby hospitals they should be visited by their commanders. During battle, the soldier thinks of his home folks as though he had left them forever. He is full of hope of holding on at least a little longer, but in a manner he already considers himself as of another world. Once back at rest, miraculously saved, he comes back to life. He now thinks of his people with the practical certainty of once seeing them again. He now lives in the future; he makes plans. This remaking of family contact, actually or in thought, must be facilitated and encouraged in every way. Where this instinct is blocked, a crisis of melancholy results. It is contagious by sympathy and it is very lowering of morale. Suicide is very rare in active operations, but increases in periods of rest or after hostilities have ceased. This temporary ascendency of his sentimental life does not soften the soldier. The experience of the Allies in the war proved the contrary—the soldier's contact with his people on leave fortifies him and gives him a new grip on life, which makes him more disposed to return and take up the burden of war. For the morale of the country as much as for that of the army, leaves must be inaugurated; if not from the very beginning of operations, at least very early. Such a leave system should be as liberal as possible and must be based on absolute equality and justice. The postal service must be kept well up if we wish to keep intact both the morale of the army and that of

the country. Newspapers should arrive regularly. Newspaper reading becomes a strong habit, and a great need is felt for it. Gaiety and good humor should be encouraged by amusement, music, and singing.

"In this period the units should receive their replacements. These will be composed of new drafts and of reconstituted wounded men. It would be best if the wounded always returned to their original units; but this will not usually be possible. However, the newcomers quickly pick up the tone of their new regiment; and they should be encouraged to do so by a feeling of welcome and by avoidance of a spirit of criticism of their old organization. These men at first usually resent losing their old outfits and are inclined to resist assimilation. But youth lives in the present and for the future, and not with the past. So in a very short time tradition is reëstablished, and the regiment becomes its old self again.

Lieutenant General Liggett, speaking of the 35th Division in October, 1918, says: "Coming wearily out of an action that would have tried the souls of the best troops in the world and in which they had done magnificently as individuals, this division had the misfortune to come under the eye of an inspecting officer who reported them to headquarters as lacking the soldierly bearing demanded of our army * * *." This is the type of inspection deprecated by every thinking soldier.

It is during this period that the leader should mark the men who have distinguished themselves; those present, those evacuated—above all, those dead. Though it may seem a hard, material thing to say, it is true that success in action is no less dependent on competition than success in any organized endeavor in civil life. In the work-a-day life of the world, success in competition is measured by material return, but there is none of this on the battlefield. Like some of the less mercenary endeavors of civil life, the high marks of military value are courage, abnegation, labor to a common end. It is during the rest period that merited citations should be promptly prepared, and the time between the preparation of citations and bestowal of the decorations should be as short as practicable. Ceremonies for decorations should be as impressive as possible, and the better known the general who pins them on the greater will be their effect.

During this period officers and men are sent off on leaves, which only too frequently are cut short by a call to go back into battle.

The governing of troops presents difficulties. During rest periods, it may be found that reliable noncommissioned officers, not selected for leave parties, go absent without leave. They disappear, relax in their own way, keep in touch with events, and report back for duty when the call comes. Frequently they are so valuable that corrective action reducing them would lessen the unit's efficiency in action. It is an old precept that we must regulate that which we cannot prevent. Given these conditions, one can accept the ironic adage of the old infantry colonel who said: "Success in military life lies not so much in doing certain things as in knowing what not to do!"

From the 5th Division history we have a few sidelights on conditions during a rest period. "Practically every officer and man was suffering from diarrhea and exposure." During the World War it was observed that men supported physical stress at the front, but that with the return to rest areas, colds and influenza developed. And again: "About three thousand replacements were received on the 24th of October. Most of these were untrained, many having been in the service only six weeks or a couple of months. Attempts were made to give them hasty instruction in the use of the rifle and machine gun, but the time was too short."

Theoretically, a troop unit at the front should receive trained replacements. They generally do, but the anonymous author of *The Cannoneers Have Hairy Ears* quotes a replacement as remarking on November 7, 1918, in the Meuse-Argonne Offensive: "Just eleven days ago I was put into uniform in New York City for the first time."

The commander of the III/26th Infantry, writing of the relief from the Meuse-Argonne operation, states: "At this time the regiment received about two thousand replacements. Most of these men were raw. They had had little, if any, military training. Many of them had never fired the rifle. None of them had ever fired the pistol. None of them had any idea of extended order as we knew it then.

"We started immediately to instil in these new men the *esprit*

which had carried us through many difficult situations. * * * We commenced immediately to train these men to shoot and then shoot some more. We tried to impress upon them the fact that by shooting they would most surely live to return to their homes. We used tin cans for targets. We impressed upon them that the idea was to hit and kill. We showed them on blackboards, borrowed from a French school teacher, what extended order formation looked like. Then we tried to do the same with the recruits. It was surprising how quickly they absorbed the ideas. Within four days we could do something. We could at least get into fighting formation. The recruits had fired also in the meantime at tin cans. Some of them had learned that they could shoot.

"September 17, 1918. Here more replacements were sent up. Many of these replacements were fresh from the States, having been drafted only a few weeks earlier. Some had never fired a rifle of any description and many more had never fired a service rifle. Day and night were spent by officers endeavoring to teach these men the fundamental principles such as loading a rifle. Lack of time prevented doing more." This statement is made of the 109th Infantry, 28th Division.

The night before the Aisne-Marne Offensive started the commanding officer, I/9th Infantry, had seven hundred men left in his battalion of whom "two hundred fifty were the replacements who had arrived on the afternoon of the 16th of July (two days before). These men, most of them from Florida, showed great bravery but had little or no training. Many of them had been in the service less than three months and some did not even know how to load a rifle. Our losses, particularly in officers, were made very heavy by the necessity of instructing these men on the battlefield under fire."

Infantry, which furnishes ninety-two per cent of all battle casualties, will have to absorb many replacements.

Rest, food, relaxation and training, all measured to the varying needs of the situation, restore the infantry battalion to that state of morale without which the battalion commander has no freedom of action to apply power.

The infantry battalion is then ready for the further efforts necessary to carry out the will of the Nation.

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